THE HEALTH RESORTS OF THE SOUTH OF FRANCE.

DR. LEE.

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THE

HEALTH RESORTS

OF THE

SOUTH OF FRANCE.

WESTERN DIVISION.

PAU, BIARRITZ, ARCACHON.

By EDWIN LEE, M.D.,

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NEW EDITION,

WITH ALTERATIONS & ADDITIONS AND APPENDED REMARKS ON THE INFLUENCE OF CLIMATE.

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PREFACE.

CONSIDERABLE alterations have been effected in the winter resorts of this part of France since the last edition of this work was published in 1865, which will be specified under their respective heads: and it has been deemed advisable to publish this portion separately, for the greater convenience of local circulation, and for the accommodation of those persons who may desire information respecting them, either while sojourning at one or the other, or who may contemplate resorting thither, but who, at the same time, are not so much interested in the winter sanitaria of

the eastern division. As respects the general characteristics of the climate, I find no occasion to alter the opinion previously expressed, the correctness of which has been admitted by persons most competent to form a judgment upon the subject; but as respects details, I have been enabled to add some further particulars supplied me by resident physicians, who have given much of their attention to the subject.

London, June, 1868.

SOUTH OF FRANCE.

WESTERN DIVISION.

PAU.

ACCESS to Pau, which has long been easy from the west, is now no less so from the eastern side, by the completion of the railway from Toulouse and Tarbes. From this latter town the line passes through a most interesting country, along the right bank of the gave de Pau, the station being immediately beneath the Place de l'Europe. The drive from Tarbes to Pau is likewise very interesting, and oucupies about three hours.

The entrance to the town on this side is by a fine wide street (de la Halle). On the left is the Halle, or market-place; opposite is a building comprising the Prefecture de Police and the Post Office. The continuation of the street beyond this assumes the name of the Prefecture, and beyond, on approaching the castle, of du Chateau; the whole being about a third of a mile long. The chief divergent streets are, on the right the Rue Serviez, with which is continuous the Rue Mont-

pensier, the Rue de la Mairie, leading to the Palais de Justice, and, further on, the Rue Bordenave d'Abére, which bridging over a ravine, on whose declivities are clustered several old houses, descends to a spacious square, the Place de Grammont. From this Place two streets lead to the Basse Plante, a planted area of considerable extent on a lower level, and two ascend to the Haute Plante, which borders a spacious military exercise ground, or Place d'Armes—a large barrack occupying one extremity. On the right of the Rue Montpensier is an avenue leading to Trinity Church, and to the Grand Hotel; on the left is the Rue d'Orleans, likewise leading to the Palais de Justice and to the handsome Church St. Jaques.

The principal street on the left of the Rue de la Prefecture is the St. Louis, leading to the Place Royale. The streets parallel with the Rue de la Prefecture, are the Rue Henri IV., terminating in the Place Royale, whence is continued the Rue du Lycée to beyond the Halle. These, together with the Rue Marca, and one or two other streets near the Haute and Basse Plantes, are the situations preferred by strangers, on account of the superiority of the accommodation, and the favourable exposition of the houses.

At the western extremity of the line of streets

enumerated, is the old Chateau, formerly the abode of Henri IV., which, with its antique towers, seen from any part of the neighbourhood, forms the most conspicious and picturesque object in the view. In the court-yard, which, together with the entrance has been lately restored, are the heads, in *bas relief* of some ancient princes of Bearn, of which Pau was the capital. The interior has been in great part modernised; it still contains several relics of *le bon Henri*, "*qui fut de ses sujets le vainqueur et le pére*," including his cradle, formed of a tortoise-shell, his bed, and other articles of furniture. The walls are hung with specimens of Flanders tapestry, in which are commemorated several incidents in the life of the king. From the summit of the most ancient tower is displayed a splendid panorama of a highly cultivated and richly-wooded country, dotted over with chateaux and farm houses, through which flows the *gave*, here transformed from a foaming mountain torrent to a placid and broad river, crossed by a handsome bridge. The Jurançon vineyards clothe the hills on the opposite bank; while, to the south, the chain of the Pyrenees, with the *pic du Midi* towering in the centre above the other peaks, forms a magnificent background to the prospect.

The park, which is continuous with the Basse Plante, extends upwards of a mile to the west of the Chateau, at a considerable elevation above the valley. Its fine avenue of trees is of very ancient date. This, the principal promenade, is a great source of attraction to Pau. Mrs. Ellis, in her "Summer and Winter in the Pyrenees," thus writes of it:—"The park consists of a range of high ground, running from east to west, parallel with the *gave*, thickly covered with magnificent trees, chiefly beech, and laid out in walks of every variety—some straight others serpentine—some leading along high ridges, and commanding the most extensive views, while others wind along the foot of the eminence beneath the shadow of the loftier trees, and others still narrower and more intricate, are nearly lost among the thicker foliage and closer underwood, as if to suit the different tastes and dispositions of the many strangers from distant lands, who meet here to enjoy the luxury of this delicious climate." A well shaded path on the level of the river extends beneath the park to the neighbourhood of the town. At a higher level the improvement long projected has been at length effected, by connecting the Park with the Place Royale, by a foot-path, to be subsequently widened into a boulevard.

The neighbourhood of the Place and the adjacent Rue du Lycée—the south side of which has the advantage of sun and of the mountain view—are also among the most preferable situations. The houses are of solid construction, and their interior is more comfortably arranged than the houses of Italian places of resort. "Many of the old houses," says a recent writer, "bespeak the style in which their ancient owners must have lived, ere great political changes altered the relations of society. Formerly, a century ago or more, although the regal court had long departed from Bearn, its aristocracy, eminent for their long descent and their patriarchal virtues, kept up much state and hospitality. But their mansions are now tenanted by strangers, and many of the oldest families live but in history."

There are said to be upward of 600 apartments at various prices in Pau. In the Place Grammont —which has a colonnade on one side—are some good lodgings; as also on the Haute Plante, and the more sheltered Basse Plante. Less expensive apartments are met with in the Rue Montpensier, in some of the more recently erected adjacent streets, and in the Rue de la Prefecture. In the outskirts and in the country, several villas, with gardens attached, are likewise let to strangers.

The Place Royale, of circumscribed extent, is enclosed on one side by the Hotel de France and its dependencies; on the opposite side, by a newly opened Grand Hotel, and by a range of buildings comprising, on the first floor, the English Club; on the ground floor, a large café; while the northern side of the quadrangle is occupied by the handsome theatre, where Italian operas and French dramas are performed. It is capable of containing 1200 spectators. A colonnade, with shops beneath, extends along the side of this building, which likewise comprises a spacious and elegant concert room. The Place is open to the south, its terrace commanding a delightful prospect of the valley, of the course of the gave, of the *coteaux* of Gelos and Jurançon on the opposite side, and of the lofty snow-tipped Pyrenean range. On the left, the Chateau Bisanos, surrounded by fine pine trees, occupying an eminence, forms the most prominent feature in the scene. In the centre of the Place is a well-executed statue of Henri IV. The Hotel de France is in process of enlargement by the erection of a handsome stone structure extending down to the terrace, which will have the advantage of possessing many rooms with a full southern aspect, and of the magnificent view. It is expected to be ready by next season. The

piece of ground intervening between the old and new portions will be laid out as a garden. On the prolongation of the terrace towards the Park is likewise a newly-erected hotel, *garni* (Bellevue), let in apartments for a longer or shorter period. Half way between the terrace and the park, a handsome church (St. Martin) is being constructed on the site of the old edifice. The musical band plays three times a-week on the Place.

Besides the above-mentioned hotels, there are others in different parts of the town. The Poste, an old established and well-conducted house in the Place Grammont, contains a handsome neatly-constructed dining room, and commodious apartments; the Europe, near the Halle; the Victoria, in the Rue Marca; the Angleterre, &c. The principal hotels contain a *salon de re-union*. There are likewise two or three boarding houses.

Pau now contains a population of 25,000 souls, and presents abundant resources for occupation and recreation. The reading rooms of the English Club are well supplied with the principal journals, magazines, and books. It comprises, besides, card, billiard, and smoking rooms, and refreshments may be obtained from a buffet. There are annual members, subscribers for the whole or part of the season, and passers through may avail them-

selves gratuitously of its advantages for four days on the introduction of a member. There is also a cercle or French club, to which English visitors are readily admitted. At Lafon's Library, in the Rue Henri IV., books may likewise be obtained for reading. Here, as also at Bessy's, are fine views and photographs of Pau, its environs, and of Pyrenean scenery. The public library at the Halle contains about 20,000 volumes; it is open at stated hours daily.

Besides Trinity Church, already mentioned, divine service is performed in the original church, built for English and French protestants, capable of containing upwards of 500 persons, in the Rue Serviez. A third church has lately been constructed of iron. There is also a Scotch Presbyterian service. This increased church accommodation is not however more than is required for the increased number of visitors of late years.

During the winter there is a great deal of agreeable society at Pau. As it does not lie on the road to any other large winter resort, the visitors are more stationary than in the frequented coast towns on the way to Italy, and the larger porportion of families arrive with the intention of passing the winter there. There are, consequently, comparatively few sojourners for a brief period.

Riding is very general. Good horses and ponies for excursions in the environs are plentiful, and carriages may be hired by the hour or course. A pack of hounds hunts on stated days, and has always a goodly number of followers.

Pau presents moreover considerable facilities for education; the Imperial College or Lycée numbers several hundred pupils, there are private establishments for boys and girls; and masters for languages and accomplishments are not wanting.

Pau is well supplied with provisions of all kinds, fish and butchers' meat are of excellent quality; poultry and other farm produce are abundantly brought in from the country; vegetables are likewise abundant and the water is good. Some of the wines of the neighbourhood, as Jurançon, are celebrated. The surrounding country presents an attractive appearance, being greatly diversified, and like many parts of England; its well wooded hills and pleasing vales offering strong inducements for out-of-door walking or riding exercise. The roads are kept in good order; the most frequented leads to the village of Gan. Diverging to the left of Gan, a road winding round the base of the hill Ganados, and ascending the hills amidst pleasing scenery, leads to La Pietad, an eminence surmounted by a chapel and large cross, formerly

greatly resorted to, and still the scene of an annual fete. It commands a delightful prospect over a large extent of varied country. The ride or drive to this spot, over the *coteaux* of Gelos, is likewise very interesting; the road ascending the hill opposite Pau passes by the chateau and grounds of the Duc de Montebello, whence there is a charming prospect of the town, its castle, and of the valley and river for several miles. Higher up, the view comprises the richly wooded hills and vales intervening between the *gave* and the Pyrenees. "I have never seen a country so beautifully ridged," says Mrs. Boddington, "one wooded line runs parallel with another, not stiffly, but in soft and graceful undulations; a third and higher one stretches off beyond—valley after valley lies behind them, full of silence, shade, and freshness; and as there are literally no bad bits here, every country-house has at least a fine position, usually a pleasant country character, and often woods and lawns that one loves to liken to our own England."*

Another road leading in this direction ascends the left bank of the *gave*, turning to the right beyond the suspension bridge, about four miles above Pau. The road to the village of Nay beyond

* Sketches of the Pyrenees.

Bisanos, on the opposite bank of the river, about an hour and a half's drive, is also much frequented. The Maison Carée at Nay is an interesting relic of bygone times. A few miles further on is the chateau de Corrèze, where Henri IV. passed his infancy. Picnic parties are occasionally held in the grounds. Among the other spots in the environs to which excursions may be made with pleasure, may be enumerated Montfleuri and the village of Laroin, a few miles below the bridge on the left bank of the river. Several of the paths and smaller roads lead between hedges or through vineyards to pleasing lawns and open fields, where grow a variety of wild flowers. One of the most frequented walks is to the "Happy Valley," on the left of the Gan road, soon after crossing the bridge.

Pau presents an animated aspect on market day; large numbers of the peasantry come in on donkeys or horseback, or in various primitive vehicles, from a considerable distance, especially from the direction of Gan—the road being thronged in the evening by the homeward bound. The lower classes of this district of France, and of the Pyrenees in general, are well-formed—many of the women handsome—temperate, well-behaved, and obliging to strangers; though in

Pau, as at other season places of resort, exactions are occasionally complained of.

Detailed accounts of the most interesting places in the environs, Lescar, Morlaas, Betharram, are given in the small guide published by the Syndicate, which likewise comprises historical notices of the district, and a variety of information useful to strangers. Gratuitous information is given by this Institution respecting the situation, price, &c., of various houses and apartments. Differences between visitors, lodging-house keepers, and other inhabitants, are arranged, when practicable, by arbitration through this medium. Should any inhabitant refuse to abide by this arbitration, he would no longer be inscribed on their list. Good servants are likewise supplied by the Syndicate.*

Pau contains a civil hospital for the reception of patients affected with acute and chronic diseases; a hospice or asylum for aged and infirm paupers and foundlings, a separate division being appropriated to sick soldiers, and a *bureau de bienfaisance*, managed by a commission, for affording

* The number of English families in 1861-2 amounted to 276; in the following five seasons, successively, to 354, 385, 359, 365, and 291. Last season Pau was excessively full, but the weather was exceptionally unfavourable; wind, so unusual here, having been inconveniently experienced.

assistance to the poor of the town. At some distance in the country is the Asile Saint-Luc, where paying and indigent insane patients are received. Sick persons residing in lodging-houses, who require constant superintendence and watching, may have the advantage of being waited upon by the Sœurs de Saint Dominique.

The following details may serve to convey a tolerably correct estimate of the distinguishing peculiarities of the climate of Pau. Its chief characteristic is the general calmness of the atmosphere, which, owing to its elevated position, and the gravelly nature of the soil, is drier than that of most other towns in the south-west of France. "Calmness," said Sir James Clark, many years ago, "is a striking character of the climate, high winds being of rare occurrence, and of short duration. The mean annual temperature is four and a half degrees higher than that of London; five lower than that of Marseilles, Nice, and Rome. In winter, it is two degrees warmer than London, three colder than Penzance, six colder than Nice and Rome, and eighteen colder than Madeira; but in spring, Pau is six degrees warmer than London, and only two and a half colder than Marseilles and Rome. The daily range of temperature at Pau is seven and a half

degrees; at Nice, eight and a half; at Rome, eleven. The number of days on which rain falls is, on an average, 109, nearly the same as at France, and about 70 less than at London. The west wind blowing direct from the Atlantic is accompanied by rain; the wind from the north-west, and from this point to the north-east, brings dry cold weather; while that from the north-east to the south is usually attended with clear mild weather; south and south-west winds are warm and oppressive. The westerly or Atlantic are most prevalent. The north wind blows feebly and is not frequent. Rain seldom continues for more than two days at a time, and the ground dries rapidly: the atmosphere, generally speaking, is free from moisture. There are neither fogs nor cold piercing winds, and the mildness of the spring is characteristic."*

Sir Alexander Taylor, who has for many years resided at Pau, remarks with reference to the winds—"The town extends from east to west, and may be said to have three parallel streets. It is built upon a terrace which overlooks the river, at an elevation of 150 feet, and consequently faces the Pyrenees, and is protected on the north by

* On Climate.

the *Landes* of the Pont Long, which ascend very gradually to the distance of eight miles from Pau. The north wind is thus directed into currents, which, being attracted by the lofty mountains to south, pass at an elevation considerably above the town, so that the clouds may often be seen quietly sailing onwards when the leaves are unmoved on the lower level. From the west, the point from which the wind not unfrequently blows, the well-wooded park forms, at the distance of a mile, a species of headland. This latter makes a linear intersection with the amphitheatre formed by the *coteaux* of Jurançon, which embraces Pau to the south and south-west, and screens it and its environs from the worst consequences of the only bad-weather quarter, the west and south-west. The east and south-east winds and their combinations are rarely felt, except in bringing dry warm weather; so that Pau frequently, one might say generally, enjoys a great stillness of atmosphere, often so complete, as to leave a doubt as to the direction from which the wind really comes." *

The effect of this excessive calmness of the atmosphere is manifested in the temperament of the inhabitants. "In a sedative atmosphere," adds Sir A. Taylor, "we find the phlegmatic tem-

* On the Climate of Pau.

perament, and a diminution of nervous and arterial sensibility manifested by the small susceptibility to impressions, by the slowness of pulse and the sub-acute character of disease. In a moral point of view, we remark, under the same circumstances, grave and tranquil manners, sluggish imagination, a tendency to reverie, and a marked absence of violent and irascible passion.

"Therefore it is that the inhabitants of Pau and the neighbourhood are more phlegmatic, and slower in mind and action than is usual among the French. They have not the same vivacity, and their gestures are more calm and easy. The circulation of the blood is evidently with them less rapid and more uniform, and consequently the brain is less actively excited by the arteries. In critical times of great agitation, they conduct themselves with great moderation, and are easily governed.

"We have frequently remarked in the case of strangers who have arrived from more exciting climates, in whom the temperament was full of tone, and the nervous and vascular system was endowed with much susceptibility, that after a sojourn of two or three years, and sometimes even before this time, the temperament becomes modified, nervous irritability is diminished, and

the pulse falls permanently several beats. An analogous change takes place in the *moral*—activity gives place to indecision; reverie succeeds to intellectual energy and to habits of persevering exertion; and persons, the subjects of this change, feel heavy and somnolent."

The average amount of rain is 40 inches, while at London it is 27 annually. In London, however, it rains on a greater number of days, though less in amount than at Pau, where it falls in large quantities at a time, and frequently after sunset, so that there are few days in which exercise may not be taken in the middle of the day.

A resident physician, M. Cazenave, remarks, on comparing the climate of Pau with that of Rome, that although the mean temperature of winter is higher in the latter than in the former town, Pau is not liable to the great transitions of temperature which so frequently occur in Rome. "The town is completely exposed to the east and west, while on the south rises at the distance of some miles, the Pyrenean chain. From this topographical disposition, it results that when the northerly winds blow, the hills which rise on this side check their course. If the southerly winds prevail, their passage is interrupted by the Pyrenees, whose lofty peaks and snow-covered summits break their force

and lower their temperature. If, on the contrary, we place Pau in idea on the south by the Pyrenees, thus establishing a topographical analogy with Rome, which we know is on the south of the Appenines, we may readily perceive the immense topographical advantage which its position confers upon our town. Hence, both the tramontana and sirocco are unknown at Pau."

Dr. C. explains the exemption of Pau from the mistral by the circumstance, that being placed in an angle of the mountainous chain, the air becomes concentrated on it. "When the north-west wind blows, these masses of air, violently impelled in the south-east direction into this vast angular enclosure, accumulate there on account of the absence of any opening for their escape; there necessarily then occurs a time when the air becomes so concentrated in this enclosure, that there is produced in all this aerial mass a kind of stagnation; the wind then being forced to rise, the agitation is carried to the higher regions, while calmness reigns below."

Having given an explanation of the cause of the prevalence of the mistral in Provence and the south-east of France, viz., the passage of the wind down the gully formed by the valley of the Rhone, I should rather attribute the exemption of Pau, as

well as the other town in the south-west of France, from its influence, to the simple circumstance that these towns lie out of its course.

"The injurious influence of east winds," adds Dr. C., "which is so commonly experienced at Nice and Naples, is almost unkown at Pau. Must we ascribe this fortunate circumstance, with an English climatologist, to the fact, that these winds, before arriving at Pau, traverse a great extent of dry and well-sheltered country, and thus lose the pernicious humidity with which they are impregnated in their passage across the gulf du Lion, and the marshes of Aigues Mortes? I am inclined to think so, without affirming it."

The state of venous congestion, not unfrequently produced in strangers from the climate, is evidenced by languor, listlessness, sense of fulness in the head and chest. The influence of the climate is, however, generally beneficial to children. It is, as may well be inferred from what has preceded, prejudicial in cases where there is relaxation of the system, and a declension of the vital powers, as in many old people; in atonic dyspepsia and rheumatism—tendency to apoplexy —nervous disorders from a defect of power; and in pulmonary diseases, occurring in individuals of a relaxed and torpid habit—in bronchitis without

inflammatory tendency, and where there is copious expectoration; in fact, in all those cases in which a more bracing or exciting climate is likely to be beneficial.

The general mortality of Pau is favourable, as compared with some other places of resort in the south: it is stated to be 1 in 45; whereas at Nice, it is 1 in 34; at Rome, 1 in 25. The noxious influences prevalent during the summer season, and the indifferent hygienic conditions which operate among the lower classes of the two latter places, must, however, be taken into account as regards the amount of mortality.

"Pau," says Sir A. Taylor, "is exempt from endemics and epidemics. Natives as well as strangers, the latter more frequently, are occasionally seized with fever, which is in almost all cases traceable to imprudent exposure to the sun's rays. Scrofulous and tuberculous diseases are found in very small proportion to the population, although they are occasionally developed from the same causes which tend to produce them in other climates and communities, viz., unwholesome trades, absence of sunshine in crowded localities, confined air, poverty, and want of nourishing food. Rheumatism is not more common at Pau than at other places, though the popular opinion is

that it is frequent. Bronchitis, though not of an acute character, is not unfrequent in winter and spring. Among native children the usual grave maladies are cerebral congestion and gastro-intestinal irritation, but glandular and mesenteric diseases are very rare. In continued fevers the symptoms have a greater bias to the typhoid than to the inflammatory type."

Let us now see, on the other hand, what has been said of Pau by some recent medical writers unconnected with the place. Dr. T. M. Madden, who has written a work professing to record the result of his personal observations, but whose experience of Pau seems to have been limited to part of an unfavourable season, does not give a correct sketch when he says, "in no part of France is there apparently so little enjoyment of life, or so *few opportunities for amusement of any description*, as in Pau. The first impressions produced on a stranger are of a *gloomy and repulsive nature*, and from the *silent and deserted streets*, and grave, *not to say sour*, visages of the inhabitants, one might, by a very slight stretch of the imagination, fancy one's self in some Calvinistic Scottish town, and not in the south of 'La belle France.'"

Of the climate he remarks that, it "has been

written up very assiduously." But no amount of eulogy affects the temperature of a locality, or adds a degree to the scale of the thermometer. And though the books that have been written have answered their purpose most successfully, by bringing crowds of invalid travellers to spend their winter months in a locality, in favour of which they have such strong and circumstantial statements, still the climate remains what it was before the books were written, essentially *cold, variable, damp, and dreary* during the winter.

"Confiding in the works I had read, I arrived in Pau from Algiers in the beginning of January, expecting to find a mild, equable, genial climate. I was soon undeceived. The change was literally from an atmosphere warm and bright as summer in this country, to one nearly as cold and damp as some parts of England and Ireland in mid-winter. The evenings were foggy and the mornings misty, and during the month of January there were few days on which any person suffering from pulmonary disease could go out of doors without prejudice to their health. The precaution taken by the Bearnese against cold and damp would indicate a climate more likely to occasion than to cure pulmonary disease, for every native here wears a *cachenez*, and thick woollen clothing

in winter, while English invalids are sauntering about in their summer garments.

"From Dr. Taylor's estimate of the mean temperature we learn that in winter the temperature of Pau is only three degrees higher than that of one of the worst climates of Great Britain (Dublin), and is 13 degrees lower than that of Malaga. In spring, however, the climate is somewhat, but not much, better. From the 1st December, 1861, to 15th March, 1862, there were 51 bright days, 18 cloudy, 13 partly cloudy, 18 on which rain fell, nine of which were continuous wet.

"Pau is the most variable climate I know of in the south of Europe, and the changes of temperature are not only greater but also more sudden than at any other. Although there is more rainy weather in Dublin, yet at Pau it 'never rains but it pours,' for the actual (annual) quantity of rain that falls is 42 inches, or 15 more than at Dublin, and 26 more than at Malaga.

"Dr. Taylor makes the observation that 'there is a peculiar absence of communicable humidity in the atmosphere of Pau.' If we test this statement by comparing the climate of Pau with some place where there is no 'peculiar absence of free communicable humidity' in the atmosphere, such as Kew, for instance, we shall find little proof of

this boasted superiority. Thus, during the month of November, 1861, the mean moisture of the air was 82 at Pau, with 85 at Kew; and in December the mean moisture at Pau was 83, which was exactly the same as at Kew.

"During the portion of the winter which I passed at Pau, there was a constant combination of cold and fogs in the mornings and evenings. The thermometer was frequently below the freezing point during the night, and there were few days on which rain did not fall. The streets *are never cleansed*, and were in a sloppy and dirty condition.

"It is certainly true that there is here a peculiar stillness of the atmosphere, and generally a great freedom from harsh and violent winds, which is especially obvious in spring. This, though in some respects an advantage, is not an unqualified one; the stagnation of the air giving rise to a weak and languid circulation, generally accompanied by a corresponding state of mental and physical relaxation and inertia. From this sedative action it has been argued that the climate might prove useful in chronic diseases, attended by increased vascular excitement; and, indeed I was told by some of the English residents that they had noticed a considerable reduction in the frequency of the pulse on their first arrival, which

was only temporary, as, after some time, the pulse resumed its original condition. This effect was not produced on those I had an opportunity of observing, but on the contrary, the opposite symptoms followed the arrival at Pau of two persons under my immediate notice: in both cases the acceleration of the pulse was caused by the cold, damp, and ungenial climate of Pau, aggravating the ailments of these invalids."

The conclusion at which Dr. Madden arrives is, that "the climate of Pau renders that town utterly unsuited for the winter residence of consumptive patients, *in whom the disease has progressed to its second or third stage.* It would be a bad abode in most cases of chronic bronchitis and rheumatism; also in chronic affections of the liver, and not only useless but even dangerous, according to the testimony of an eminent resident physician, in some diseases of the heart. I think that Pau should be shunned by most asthmatic patients, for whom it is too damp.

"On the other hand, this climate may occasionally act beneficially in some cases where *a pure mountain air is required,* and perhaps also in some few cases of this disease in its first stage, when there has been no hemoptysis, and the other symptoms are not strongly marked. But even in

such cases, I think a more bracing, a more equable, and somewhat warmer climate is generally required. It appears to me that the more thoroughly the climate of Pau is studied, the fewer will become the number of consumptive patients sent to winter in that town."*

During the course of the many visits I have made to Pau, I have not observed that it is more deficient in resources for amusement than other places of resort of the same size; on the contrary, I should say that there is more dinner and evening society than at most places; neither have I remarked any peculiarly grave or sour visages among the inhabitants, who, however, may doubtless be considered more sedate and less animated in countenance and action than the population of places placed under different climatic conditions; nor have the streets produced upon me the impression of being "gloomy, silent, and deserted," though it must be confessed that in wet weather they present anything but an attractive appearance. That it is not merely the writing up of the place that has attracted visitors is proved by the fact that many return thither in successive seasons, and there are several English residents.

I have elsewhere (in my prize essay on the

* 'Change of Climate,' London, 1864.

"Effect of Climate in Tuberculous Disease") stated that the chief disadvantage of very warm and sunny climates, as those of Malaga and Algiers, is that, as the spring there sets in early, the sun acquiring great power, and as there are no intermediate climates to which invalids who have sojourned there might resort, without going great distances, they very often experience the contrast on returning northwards, though the weather may be fine; and if Dr. Madden, in accompanying patients apparently to a bad state, expected to find the temperature of Algiers at Pau, in the month of Jauuary, it shows that his experience of foreign climates cannot have been very great; and it is not surprising his patients should have experienced an aggravation of unfavourable symptoms producing acceleration of the pulse. Without having the same character of climate as Algiers, Pau may with reason be said to have the relatively "mild, equable, genial, climate" Dr. Madden says it was stated to have in the works he read; and if the weather was cold and bad in January, many of the inhabitants would doubtless adapt their clothing to it, considering that they are more susceptible to the influence of cold than strangers from the north, owing to their being subjected to the relaxing summer heat.

A fair comparison of the relative humidity of two places placed under such different conditions as Pau and Kew cannot be instituted from the designated similarity of some months in one year. The atmosphere of Kew, it may, I think, be taken for granted, is much more humid in winter than that of Pau.

Most physicians would concur with Dr. Madden in opinion that Pau is not a suitable locality for many consumptive patients in the latter stages of the disease; but when, as regards its applicability to an early stage, he assimilates its action to that of a pure mountain air, I must differ from him, the effect of such an air and that of Pau being of a totally opposite nature. No absolute rule can be laid down for the treatment of, or the selection of a suitable climate, in any disease abstractedly considered. To some patients in an early stage of consumption a dry bracing air would be best adapted; to others, a moister, softer, and more sedative atmosphere would be better suited; for as Dr. Madden himself justly remarks, "it seems to me that nothing can be more fallacious than to recommend a residence exclusively in Algeria, Egypt, Malaga, or any other place generally in cases of consumption or bronchitis. But every case should be judged of *per se*, and the

fitting climate should be selected from a rational consideration of the symptoms, and not from the name of the disease."

Dr. Lombard says, in his work already quoted, "The neighbourhood of the high Pyrenees exercises a notable influence on the winter temperature of Pau, and tends to render it less elevated. Pau is not a warm winter station: it is colder by 0·22 than Montpelier, by 3·17 than Amelie les Bains, by 2·21 than Pisa, by 3 42 than Nice, and by 3·80 than Rome. It is not, therefore, on account of its high temperature that it should be chosen; it is not only colder than most other winter stations, but moreover it is not quite exempt from very severe weather. This, however, is very rare; the number of days in the year on which the thermometer descends below the freezing point does not exceed twenty-five; besides, it must not be forgotten that it is the agitation of the air which doubles or quadruples the intensity of the feeling, and the danger of taking cold, that makes it difficult to bear cold. Now, as winds are not much felt at Pau, the cold is less perceptible than might be supposed from its lower temperature.

"But that which specially characterises this climate is the abundance of rain, which exceeds a metre, viz., 1,085 millimetres, divided according

to the seasons as follows: winter 287 millimetres, spring, 322; summer, 131; autumn, 325; which, for the winter and spring seasons together, amounts to 600. This quantity of rain falls in heavy showers. The number of rainy days in the year amounts to 125, of which 98 are in the eight months from October to May. There are seldom fogs, and the sun habitually shows itself at Pau. Pisa and Rome come pretty near to Pau, as respects rain, the quantity at Pisa being 1,048, of which there falls in winter 255, in spring 229, in summer 175, in autumn 475. At Rome the quantity does not exceed 800. In both these towns the heavy rains fall that are characteristic of southern climates. At Nice there fall only 703, distributed over 60 days, one half of which are in autumn, and a quarter in winter or spring. At Hyeres the amount is 746." *

Another writer, already quoted, observes, "some physicians pretend that the Pau season should begin on the 1st of September, and terminate on the 1st of June. I think on the contrary, that invalids who are apprehensive of atmospherical variations should reside at Pau only from November to the end of February. For those who have not this fear, April and May are the most favourable months."†

* Les Stations Medicales des Alpes et des Pyrenées comparées.

† Les Voyages sur Mer et les Climats.—Dr. Decaisne.

M. de Valcourt thus sums up the peculiarities of the climate of Pau: "Calmness, moderate cold, bright sunshine—the sun having considerable power even in winter—habitual dryness of the atmosphere and of the soil, and rains of short duration. The inconveniences are, variable weather, the fine weather being as little lasting as the bad—rapid changes in temperature, but within limited bounds—excessive rains in autumn and in spring.

"On the whole, Pau has a healthy climate. Eruptive fevers are not dangerous there, and croup is almost unknown; the predominant diseases are intermittent fevers and rheumatism. A resident practitioner states that rheumatism is the most common disease; it is inducive, and simulates or complicates almost all the other pathological states that prevail there. Scrofula is of rare occurrence, and phthisis is uncommon.

"Mean temperature of seasons at Pau, as compared with that of Paris:—

	Winter.	Spring.	Summer.	Autumn.
Pau.....	5·8	11·5	18·6	13·1
Paris	5·3	10·4	18·1	11·2

"The vegetation of the country affords the best proof of what has been said respecting the severity of the winters at Pau. Strangers who have visited

the shores of the Mediterranean are surprised, on arriving at Pau, not to find in the environs of a town so renowned for its mild climate, those plants which in other winter sanitary stations abound to such an extent as to constitute the chief element of the agricultural riches of the country.

"Orange, lemon, and palm trees cannot bear the winter of Bearn—even the olive tree, though much less delicate, is unknown there. The absence of this southern vegetation is an evident proof of the inferiority of the temperature of Pau to that of all other winter stations, and although the brightness and warmth of the sunshine now and then recall to mind the best winter climates, yet the trees deprived of their leaves, and the torpor of the vegetation, as shown by the aspect of the country, sufficiently attest that the winter season can be very severe. We must not forget, however, that if for a Parisian the temperature of Pau is only a degree or two higher than that to which he is accustomed, the difference is considerable as regards a German, and especially a Russian. As respects the English, not only do they find at Pau a climate a little milder than their own, but besides, they may warm themselves by the rays of a sun that is not obscured by the thickness of the atmosphere, as it is in their own country. Rain

is of frequent occurrence in all the countries situate on the shores of the Atlantic ocean. The month of November is an especially rainy one at Pau, but altogether there falls a smaller quantity of rain in autumn than in spring. Dr. Ottley has stated the number of rainy days in the year to be 140, which is almost as great as at Paris; but in this estimate all the days were reckoned on which rain fell, if only for a few minutes, and the nocturnal rains were taken into the account, the pluviometer being observed in the morning.

"The average rain fall in winter is 183 millimetres; in spring, 423; in summer, 225; autumn, 259.

"The sky at Pau is as often cloudy as clear. It might be supposed that the climate is humid; such would really be the case, but from the sandy nature of the soil the water is rapidly absorbed, so that with the sun's assistance the ground dries fast enough to admit of invalids going out without inconvenience a few hours after the heaviest showers. It must, however, be remembered, that during the first rains of spring the air is sharp and raw."—(Sir James Clark).

"Strong winds are of rare occurrence at Pau. This circumstance is attributable to the geographical situation of the country, which is evident

on analysing the points of departure, and the course of the different aerial currents.

"An English author (Taylor) explains the want of power of the north wind by the disposition of the *landes* of Pont Long. I think this reason is insufficient, for the inclination of the *landes* is almost imperceptible, the true cause that exerts an influence upon the rapidity and temperature of the north wind, is the neighbourhood of the ocean. In fact, this wind having skirted the west coast before arriving at Pau, has lost its sharpness; its temperature has become happily modified, and as it is colder it blows with less force towards the countries lying southward. The current of air that comes directly from continental regions into Bearn is the north-east, but it has met on its passage several mountain chains—the Vosges, Cevennes, the Cantul hills—which have modified its course and changed its direction; and the valley of the Saone and the Rhone have in great part absorbed it; it has become the Mediterranean mistral, and this arrives in the south-west of France considerably weakened.* As respects the

* I think, as Dr. Cazenave has observed, that the Pyrenean barrier by obstructing the free passage of the winds from other quarters than the south, and by forming a *cul de sac* in which the air is accumulated, is a chief cause of the stillness of the atmosphere of Pau.

easterly winds; after passing over the Appenines, and over the Mediterranean, they bring into the gulf du Lion cold and rain, but after passing Perpignan they meet the numerous ramifications of the Pyrenees, which reckoning from the Canigou to the Pic du Midi de Bigorre, are the advanced posts of this mountainous chain, and by their low temperature occasion the condensation of the greater part of the watery vapour with which they were impregnated by passing over the Mediterranean, so that the east wind, being dried on its passage, seldom brings rain to Pau, but it is cold and disagreeable. On the south side the Pyrenees oppose a barrier to winds blowing from Spain, and force them by their elevation to pass over Pau.

"M. Jouananet has demonstrated that there exists between mountains and valleys an alternating movement of the atmosphere, resembling the sea breeze, and the land wind. This phenomenon occurs at Pau. The proximity of the mountains exercises an influence over the temperature of the nights: a current of air descends from the heights and lowers the temperature in the valley; the frequency of the south-east wind is owing to this circumstance. This wind is formed at Pau by a combination of the east wind and of the descending current. Between 11 and 12 o'clock the

action of the sun upon the mountains causes the air to ascend, and the atmospheric current from being south-east, becomes east or north-east, unless it should turn to the west, in which case clouds soon form, rain succeeds to fine weather, and the temperature rises a little, for the western winds from the Atlantic are warm and laden with moisture.

"The west is the predominating wind: it blows 113 times a year; if to this figure we add 29 and 55, which represents the number of days on which the south-west and north-west have been observed, we see that the winds blow from the direction of the Atlantic on five days out of nine, a result which coincides with the number of days of rain-fall, and which explains the sedative qualities of the Pau atmosphere.

"During winter the dry winds from north-east to south-east predominates; in spring, the westerly winds assume the preponderance, and the rains increase, which last till June.

"The climate of Pau is very suitable to persons of a nervoso-sanguineous temperament, whose powers are not deficient, but who are exhausted by feverish action. The consumptive patients belonging to this category are more numerous than is supposed. Physical and moral calmness is indispensable to them; without it, both hygienic and

therapeutical means are powerless to check the progress of the evil. There are few winter stations that are so calculated to be serviceable as Pau to this class of patients. The climate may also be of great service in *all* (*?*) nervous affections—even hysteria is favourably modified by it.

"A residence at Pau is, on the contrary, prejudicial to patients who require stimulation; phthisis of a scrofulous origin requires a more tonic climate. The same may be said of all those persons who, weakened from any cause, are in a cachectic state, whether it be accompanied with tubercular disease or not. Even persons of a nervous constitution support with difficulty so soft an air, when nervous superexcitation is no longer the predominating symptom, and when we have to combat a state of general ailing. Lastly, those who are subject to the rheumatic diathesis should avoid this climate, for the disorder would not fail to manifest itself. I am acquainted with several persons who, having come to Pau to accompany invalid relatives, have greatly suffered from rheumatic pains, which could not be ascribed to any other cause than to the influence of the climate."*

A resident physician, Dr. Lahillonne, who has appended a notice of the climate to the Guide

* 'Climatologie,' &c.

published by the Syndicate, observes, "the mean temperature of Pau in winter is from 7 to 8 degrees; it is lower than that of the stations on the Mediterranean coast, but this difference is amply compensated for by the stillness of the atmosphere." Dr. Schaer has remarked "that the atmosphere frequently remains so calm, for a month or six weeks, that the leaves on the trees are scarcely seen to move. It is often difficult to say in what direction the wind blows, and the clouds are seen to float swiftly above the mountains, while below the air is quite still. It results from this, that although the mean temperature of Pau is some degrees lower than in some other places situated under the same latitude, the coolness and the cold of the air are less felt, and an agreeable warmth is enjoyed in the middle of the day in winter, when the sun appears, even when the general temperature is rather low. It must, moreover, be observed that if in cold weather a difference of temperature, as felt on passing from spots exposed to the sun to others in the shade, this inconvenience affects invalids less sensibly at Pau, on account of the habitual stillness of the air, than in some other southern resorts where it cannot be avoided."*

There are bad days at Pau as elsewhere; and

* Essai Climatologique sur Pau—1866.

patients who are the most exacting as respects climate, are often the most unreasonable as respects hygiene; many wrap themselves up too much, and their skin acquires an extreme susceptibility, consequently they easily take cold, the least draught of air or change of temperature occasions coughing. They must have hot-houses to live in, rooms full south in which they vegetate deprived of a really respirable air." These remarks are more applicable to French and German than to English invalids, who are apt, on a sunshine day, to go out too lightly clothed, and not to take sufficient account of the difference of temperature between the mornings and evenings, and the middle of the day.

"It is rare," adds Dr. Lahillonne, "to meet with chronic bronchitis at Pau; consequently the bronchitis which so constantly threatens consumptive patients is removed by the influence of our climate." "If," as Dr. Ullesperger has observed, "Pau only suits the active forms of tuberculosis, in which the expectoration is deficient, where danger threatens, and a fatal result is to be apprehended, when the question is to remove as speedily as possible an inflammatory focus," what better eulogy of the climate is there than this? Bronchitis is as much to be feared in the torpid as in the erethetic form of tuberculosis—in neither are excitants required.

A sedative action must be obtained, either by means of climate, or by pharmaceutical remedies. Well, experience has demonstrated that but little medication is needed in the course of pulmonary affections at Pau; the climate and hygienic measures being its best auxiliaries. It is remarkable with what facility hemoptysis can be checked here—rest, acidulated beverages, and the application of cold suffice to remove it. This is an important circumstance, when it is considered how much alarm the occurrence and presistence of hemoptysis excites in the mind of the patient, and of his friends.

"Rainy days are less dangerous to invalids at Pau than cold dry days—a calm atmosphere and cloudy sky is more favourable to them. Many patients are too desirous to bask themselves in the sun, and the more readily take cold. It is not enough, as is generally supposed, to prevent the direct action of the sun's rays upon the head; if one part of the body be more warmed by these rays than another, a cold may ensue in consequence of a reflex nervous action, of which the mechanism is unknown to us. When in the sunshine, invalids should walk about in order to present different parts of the body to its rays.

"The climate of Pau lessens, in the first place,

the activity of the stomach; patients frequently experience difficult digestion, and a sensation of fulness in the epigastric region. Chalybeate preparations, especially chalybeate waters, are of great service in these cases, and this inconvenience generally disappears as soon as the nervous power regulating the artereal and venous circulation regains its equilibrium. All patients in the last stage of phthisis, who I have had opportunity of seeing, have been able to take food up to the last.

"A great number of strangers, who owe the recovery of their health to our climate, have fixed themselves at Pau, and have built handsome villas, where they come to reside every winter, which circumstance proves that the increased frequentation is not referable to undue means of obtaining publicity. In my travels abroad I have met with but a small number of physicians who possess exact information respecting Pau. It is, however, very important, not only as respects our interests, but also as regards the welfare of invalids, that its advantages should be publicly known abroad. The few preceding observations will not achieve this object; I have rather pointed out what has not been done, and what yet remains to be done."

Another resident physician already quoted, Dr. E. Cazenave, remarks,—"The climatic reputation

of Pau is not of recent date, as might be supposed; it may be said to have originated with that of the Pyrenean thermal establishments, attracted by the reports of the surprising cures contained in the writings of the illustrious Bordew, invalids began to resort to Bearn, the advantages of which they soon appreciated. With the wonderful tact imparted by suffering, they soon comprehended the chances of cure presented by so calm an atmosphere, free from those sudden transitions of temperature which so fatally counteract the influence of the higher temperature and clearer skies of Italy. It is not, therefore, physicians but patients who have given to Pau its just place among medical stations. Medicine has only subsequently sanctioned the instructive choice of patients."*

From what has preceded, there need be no difficulty in determining the class of cases in which it would be advisable to recommend a winter's sojourn at Pau in preference to other places. I have chiefly dwelt upon the advantage of the climate in a large proportion of diseases of the lungs and air passages, but there are several other chronic complaints to which it would be no less applicable, which an acquaintance with its leading

* Appreciation climaterique de Pau.

characteristics would enable the physician to discriminate. To many old people in tolerable health, or liable to winter cough, Pau would be found to be a very suitable winter abode. If the almost constant warmth, sunshine, and the blue skies of Italy are not to be expected; if the sky be not unfrequently clouded; if snow occasionally falls; if there be a greater amount of rain, and if the temperature be lower at Pau, it is, on the other hand, exempt from sudden transitions of temperature; the cold is less felt, owing to the absence of wind, and it agrees very well with many persons in health, who are not liable to feel the depression of which others complain after a somewhat protracted sojourn. This inconvenience may, however, often to a great extent, be obviated by active exercise on foot or horseback, or by the passive exercise of driving; the body being carried rapidly through the air a similar effect is produced for the time as if it were stationary, and the air in motion. The superior comfort of the solid-built houses is, likewise, a circumstance to be taken into the account in estimating the advantages of Pau.

Three English physicians, Sir A. Taylor, Drs. Ottley and Bagnall, have long practised at Pau; a fourth, Dr. de Castro, has recently gone to reside there in winter.

BIARRITZ.

BIARRITZ is situate on the Atlantic shore, a forty minutes' drive from Bayonne; omnibuses passing to and fro every hour, afford a recreative resource to its visitors.

This town occupies a fine position near the mouth of the Adour, close to the point of its junction with the Nive, and is strongly fortified. Its streets present an animated aspect, having somewhat of the Spanish character; the quays on the Adour are spacious, bordered with shops and cafés; a large portion being occupied by an immense quadrilateral edifice, comprising the courts of justice, the prefecture, and the theatre. Large vessels can ascend the Adour, several being moored in the port and river. The chief object of interest is the Cathedral standing on elevated ground, and one of the finest in France. Bayonne would, however, present no inducement for visitors to delay their departure beyond a day or two.*

* The railway to Spain passes two miles distant from Biarritz, but a branch line is about to be opened.

Since Biarritz has become an imperial residence, it has been completely transformed from the insignificant place described by Mr. Inglis upwards of thirty years ago, when it was deserted for three-quarters of the year, and the few bathers who resorted thither during two or three summer months had no other means of arriving than by walking from Bayonne, or riding over a sandy road *en cacolet* (two persons balancing each other on side seats on a horse). The town, now containing a fixed population of 4000 souls, is built for the most part on elevated ground overlooking the sea, and consists principally of a series of streets—(Mazagran, Port Vieux, &c.) of lodging houses and shops—the Place Ste. Eugenie near the beach, the Place Bellevue, with terrace commanding an extensive sea view, the Place de la Mairie on a higher level, whence is continued by a gradual ascent a long street (Silhouette) leading up to the cliffs, on which several houses have lately been erected. The Place Bellevue contains the Casino, the Grande Maison Garderés, and a large cafe. In the Place Ste. Eugenie are the church and the Hotel d'Angleterre; in the streets Mazagran and Silhouette are the Hotels de France (kept by the same proprietor as the Grande Maison), des Ambassadeurs, and des Princes.

On approaching Biarritz from Bayonne, the first object that attracts attention is the imperial Villa Eugenie, a detached edifice of no architectural pretension, surrounded by its grounds. The lofty light-house, crowning a rock on the Cape St. Martin, is likewise a prominent object. Beneath it is a cave—the Chambre d'Amour—much visited, though of no particular interest. The principal bathing place on the beach, is the *Côte du Moulin*, beneath the Villa Eugenie, on which are numerous wooden cabinets, where bathers assume the bath dress, without which none are allowed to bath in the open sea. At one end of the *Côte* is the establishment of warm baths of sea and fresh water. —(*Bains Napoleon.)*

At low water, a passage beneath the rocks leads to the fisherman's port, whence picturesque paths lead to the Atalaye, a promontory crowned by the ruins of an ancient Spanish castle, and commanding a most extensive prospect of the shore northwards to the mouth of the Adour, and southwards of the Spanish coast.

The sea is generally more or less agitated along this coast. The large waves of the Atlantic strike with violence against the sandstone rocks, which around Biarritz are in several places hollowed out into grottos and caverns accessible at low

water.* A sheltered nook or basin—the Port Vieux—beneath the Atalaye, presents, however, the aspect of perpetual calmness, and is the favourite place for bathing, particularly for the female sex. It appears to be naturally scooped out from the precipitous rocks by which it is enclosed, and which encounter the shock of the waves. A fine sand slopes upwards to the beach, where there is a bath establishment. The paths leading in a zigzag direction around the Port and among the surrounding rocks are highly interesting, and much frequented at bathing hours. The road cut through the rocks to the left of the Port, leading to the *Côte des Basques* is also much frequented.

From the promontory constituting the southern boundary of the Port Vieux, is presented an extensive prospect of the rocky Basque and Biscay coasts. A steep descent from the cliffs leads down to the *Côte de Basques*, an exposed part of the shore, preferred by some bathers to the calm waters of the Port Vieux.

The invigorating freshness of the sea-breeze

* The project to carry out a pier, by sinking blocks of stone into the sea as a foundation has been found impracticable. The works have consequently been suspended, and the large blocks lie at the extremity of the wooden temporary pier.

prevailing in summer on this part of the coast, the picturesque position of Biarritz, and the agreeable country within easy access, induce many Parisians and others from various parts of France, to prefer it to the northern sea-bathing places. It is, consequently, expensive in the season, notwithstanding the greatly increased accommodation.

Biarritz is however now a frequented place of winter resort, there being besides permanent residents, a tolerably large English colony, to which circumstance, the cheapness of lodgings and provisions, at this season has doubtless contributed. The climate is mild, though the Atlantic gales are fresh, and the weather, especially in the spring months, at times, boisterous. Nevertheless, Biarritz is not an undesirable abode up to the end of January, after which many invalids or susceptible individuals would find a change to Arcachon or Pau advisible. On the other hand, several persons who find a prolonged stay at Pau relaxing, regain their tone at Biarritz.

"Biarritz," says M Lombard, "naturally participates in the character of the Girondin climate. The temperature is moderate, without extremes of heat and cold. The atmosphere is often agitated by storms, or by the west winds bringing from the high sea thick clouds, whose contents are poured

out in torrential rains upon the coast of the Bay of Biscay. The winter temperature is higher than that of Pau or Pisa, and is almost equal to that of Rome. Rain is of frequent occurence, the mean annual rain fall at Bayonne is 1,200 millimetres: of which there falls in winter 296, in spring 316, in summer 220, in autumn 408. The number of days on which rain falls is 172. This copious rainfall imparts to the air a soft and agreeable moisture, for the inclination of the ground does not allow the water to collect in the streets.

"The temperature both in summer and winter, is tolerably high, but the prevalence of the sea breezes refreshes the atmosphere in the former season, and renders it less cold in winter. The thermometer seldom descends to freezing point. The mean of December, 1863, was 98; that of January, 1864, 7·80—being the same in January, 1862. The climate of Bayonne and Biarritz are nearly identical, and are characterized by the humidity of the atmosphere."*

November, December, January, February, and March, are subject to the almost constant influence of the west or south winds, which are impregnated with saline elements. The easterly winds are cold,

* "Les Stations Medicales des Pyrennees et des Alpes comparées."

and bring fine weather. The soil is dry and sandy.

Dr. Chapman, resident physician at Biarritz, has favoured me with the following statement respecting the climate and its applicability to disordered states of the system.

"The climate is from 3 to 4 degrees warmer than that of Bayonne, it is also drier. The different portions of the town differ somewhat in the character of their climate, the higher ground towards the cliffs on the western side, has necessarily a more bracing atmosphere than in the lower parts, lying to the south-east. The climate produces a remarkably good effect in scrophulous cachexia, and in general debility from whatever cause. In cases of phthisis, when unaccompanied by much tendency to pulmonary congestion, or to hemorrhage, bronchitis in a chronic state, especially when accompanied with thickening of the bronchial tubes and debility (except in the months of February and March), and in asthma attended with much secretion. Patients suffering from gout, gouty debility and chronic rheumatism, derive benefit from the climate if residents at Biarritz; if not, from April to November is the most favourable season for them. The climate acts as a decided stimulant in uterine disorders, restoring tone to the system when deficient. In cases of liver derangement or other-

wise disordered health from long residence in tropical climates, Biarritz produces in most instances a remarkably good effect, and valetudinarians without any fixed disease for the most part rapidly recover."

"Biarritz," Dr. Chapman adds, "is mild, sunshiny and dry in winter, and from the amount of ozone contained in its atmosphere, is most invigorating and health-giving to the languid and debilitated; nor are the spring months so severe and bad as is represented; an occasional storm is easily compensated for by bright sunny succeeding days."*

Another English physician, Dr. Girdlestone, has also practised for some years at Biarritz. Dr. Adhema, the *inspecteur adjoint* of the baths, likewise resides here throughout the year.

An advantage which Biarritz (as also Arcachon) possesses over Pau and the places of resort on the eastern coast of France, as respects accommodation, is that houses and apartments can be engaged by the month. The Maison Garderés fronting the

* When a change of air becomes necessary from over excitement in the more favourable time of the year, Dr. Chapman recommends Cambo, which is not very distant where the accommodation is good, and the climate of the same sedative character as that of Pau. The sulphurous and Chalybeate waters of Cambo, prove very efficacious in suitable cases. The season commences the 1st of May.

sea, which is a hotel in the summer season, receives pensionaires in the winter at a lower charge, as do the Hotel de France, in the chief street, and the Hotel d'Angleterre, in the Place Ste. Eugenie. The English church stands detached on higher ground than the main street. The congregation in winter exceeds 200. The service is performed by a resident clergyman. The accommodation is, however, insufficient, and a new church—for which subscriptions are required—is about to be erected.

The Casino, a large edifice adjacent to the Maison Garderés, with fine sea view, and spacious public rooms for amusement and refreshment, is only open in the summer. Biarritz presents but little resource for recreation in the winter season, but there is much pleasant society, without formality, among the English sojourners. Weekly assemblies are held during the winter in the Hotel de France. An English club, on the model of that at Pau, has lately been established, as also an English bank. Recently published works are received at intervals from a London subscription library. Excursions and pic-nic parties are frequently made to points of interest in the neighbourhood, where there is likewise good fishing, and some shooting. Among the frequented places may be specified the Cours Imperial, the Bois de

Boulogne, the Allées Marines, the Chemin des Champs, and the Lac de la Negresse. In the summer season, as may be expected, there are but few English visitors who remain for any length of time, the great majority being French, with a tolerable sprinkling of Spaniards.

ARCACHON.

ARCACHON is a place of recent creation, occupying the south side of a spacious basin opening out into the Atlantic, south of Bordeaux, from which it is distant (by express) an hour and a half, and twelve hours from Paris. Till of late years it was merely resorted to for sea-bathing, principally by the residents of Bordeaux, but it has since been a good deal frequented in winter; the number of buildings having greatly increased, both along the shore, and by the creation inland of a *Ville d'Hiver*. It is built on extensive sandy *dunes* covered with pine trees, forming hillocks with intermediate vales more or less sheltered, the houses being detached, generally one storey high, in the villa *cottage orné*, or Swiss style, and commodiously furnished. The station is about five minutes walk from the high road to La Teste and Bordeaux, which for some distance is bordered with villas and gardens. The continuation of this road

is termed the Boulevard de la Plage, where, on the right, are several of the best lodging houses, the hotels de France and de l'Europe; on the left, for the most part, low buildings, shops, cafés, &c. From this boulevard, short diverging streets lead on the one side to the beach, on the other to the Place la Mairie, the Ville d'Hiver, and other inland localities. They are termed Avenue du Casino, du Temple, Euphrosine, Rue de la Mairie. At the further end of the boulevard is the recently restored church with spire, of Notre Dame, beyond which are the park-like grounds planted with ilex, laurel, and other evergreens, attached to the *chalet* of M. Pereire, the well-known capitalist, who has been mainly instrumental in the creation and raising of Arcachon to its present state. Among the other chief thoroughfares may be mentioned the Boulevards de l'Ocean and Desbiez, the Cours St. Anne, running parallel with the Boulevard de la Plage, and the Avenue Ste. Marie, leading from the church to the Boulevard de l'Ocean, and terminating at M. Pereire's gate. Numerous villas have lately been built in this quarter.

The old hotels are by no means of a superior class. The want of hotel accommodation has, however, been well supplied, by the erection of a

magnificent edifice, the Grand Hotel, situate about the centre of the boulevard on the sea-side. This establishment comprises a handsome covered glass gallery leading to the suite of public rooms on the ground floor, for reading, smoking, billiards, and ladies' room; on the left is the large tastily decorated dining-room, and on the right the restaurant open only during the summer. The private sitting-rooms and the bed-rooms are luxuriously furnished with every convenience. The *Times* and several French journals are taken in. A spacious terrace extends along the whole length of the building seaward, with steps leading down to the beach. This establishment was formed by the Societé Immobiliere, which likewise owns most of the villas and chalets of the Ville d'Hiver, which are let by the month or three months at prices fixed by a tariff, which is lower in the winter than in the summer seasons.

There are two Pensions or boarding-houses in the Ville d'Hiver. The Villa Montretout almost exclusively frequented by the English and a smaller one Villa Bremontier.

Arcachon may be said to be almost entirely inhabited by its summer and winter visitors; the fixed population of the *commune* not exceeding 750 souls. It is under the superintendence of a

mayor and municipality, and possesses considerable resources as respects facilities of communication and recreation. The town is lighted by gas. An omnibus passes hourly from one end to the other, and pony-carriages ply in the streets. There is a riding school, and horses are hired at a fixed tariff. The walks and rides among the sand hills and in the forest are sheltered, agreeable, and varied. The chief point of *reunion* is the Casino, an extensive building in the mauresque style, situate on an eminence with a terrace in front, commanding a pleasing prospect, and comprising a tastily-decorated ball and concert room (occasionally used as a theatre); rooms for reading the journals, billiard and card-playing, smoking, &c. In the summer season a band plays here daily. The garden is pleasantly laid out. Between the Casino and the railway station is another handsome edifice, built in the Chinese style, appropriated to restauration and refreshments. In the opposite direction will be remarked the heights of Pigneron and Ste. Cecile, separated by a deep valley, which is crossed by a light foot bridge. On one of these hills is a Belvedere, whence a bird's eye view of the town, the forest, and the environs may be obtained, presenting a most varied panorama. In this neighbourhood their is likewise a gymnasium.

There are two local papers and two or three libraries. In the neat Protestant chapel near the Teste Road divine service is performed throughout the year, by a resident clergyman.

The basin of Arcachon communicates with the sea by a large space comprised between South Point and Cape Ferret on the west. It forms, perhaps, the best harbour of refuge on the Atlantic coast. Each of the two roadsteads into which it is divided (Ferret and Eyrac) could contain ten large ships of war, and about 3000 small vessels. From its being so completely enclosed, the water is but little affected by the Atlantic gales, and there are no large waves as on the open beach at Biarritz and elsewhere along this coast; on this account, the bathing here is better calculated for delicate persons and young children. The hotels and many of the lodging-houses have terraces and verandahs on the beach, where are also the bathing cabinets of the establishments—bathing machines not being in use. A new large bathing establishment has been lately opened.

Respecting the Ville d'Hiver, the writer of the Almanac d'Arcachon remarks:—"It consists of one immense park, comprising a space of 180 *hectares*, of a varied aspect, and intersected by carriageable roads, which, added to those made by the

municipality, constitute a total of 40,000 metres of promenades. Within this park, there are, and will be, grouped habitations, situated and constructed according to their special destinations, in the lower part, at the foot of the *dunes*, completely sheltered from winds, for patients seriously affected who require a warmer air; on the acclivities, for those who do not need to take such great precautions; and higher up for those who can bear, without fear, the occasional freshness of the winds *(bise)*.

"Each house has its separate garden. They differ from one another in form, dimension, style, decoration, colour, and even in material, so as to suit persons of various means and tastes." The price varies from 350 to 600 francs or more a month. If taken for a single month the rent is somewhat higher than for three months.* Dr. Hameau in a letter, written to me about three years ago, remarked that the strangers who resided in some houses, complained, with reason, of their want of comfort, the walls being of insufficient thickness, and openings through which draughts of air penetrate into the apartments, "so that several patients found themselves better out of

* On a house being taken for six months, a month is given in, only five months' rent being paid for.

doors than within." Many of the villas are named after historical characters, as Bacon, Shakspeare Descartes, Humboldt, &c. Among the larger villas originally constructed, may be mentioned *Le bon la Fontaine*, near the Mairie, and the villa Clara, on the Teste road. For the accommodation of single persons or small parties who do not wish to take a house, there are several *maisons de famille*—a kind of lodging-house where all the inmates dine in common, but those who prefer it may take their repasts in their own apartments—(villas Napoleon, Victoria, Halevy, Isabelle, Riquet).

The climate of Arcachon is of the same general character as that of Pau, viz.: mild and sedative, though modified by the position of the place. It is said that "there falls less rain than at Bordeaux, and at Bordeaux a little less than at Pau." The air is seldom very cold at Arcachon, on account of the neighbourhood of the sea, and the predominence of the westerly winds. But the shore is not generally desirable for invalids at this season on account of the wind. Persons may however generally be several hours a day out of doors in the forest. Invalids often complain of the absence of the diversions (*distractions*) of the town, and of having always before their eyes a monotonous verdure. This, however, in many cases, Dr.

Hameau remarks, is an essential condition of their amelioration. "The calmness of the atmosphere, the silence of the forest, a certain isolation of the habitations, a great mass of verdure, and the resinous emanations from the fir trees, constitute a combination of sedative conditions of which not one is superfluous.

"The months of November and December, which are rainy, constitute the real winter of these parts; in January the number of fine days is greater; February and March are usually very fine months, and the spring is sometimes dry; at other times moist, but never cold."

Dr. Hameau further observes, "A patient should pass one, two, or three consecutive winters in the forest, without any care for diversion, the comfortable, or worldly exigencies, having only for a rule and for occupation the distribution of time according to the prescriptions of hygiene and therapeutics. In this way, one approximates in so far as they are profitable for health, to the manners of our *resiniers*."* The *resinier* constitutes a distinct caste in the population of Teste and Arcachon. He differs from the inhabitants of the plain only in the circumstance of his leading a laborious life amidst

* 'Almanac d'Arcachon,' 1865.

the terebinthinate emanations. We should therefore endeavour to place patients in the same medium for a length of time, without, however, subjecting them to the frugal regime of their models." *

Though this system might suit some exceptional cases of pulmonary tuberculisation where repose is required, I do not think it would be advisable for the majority. The *moral* of these patients has great influence on their bodily state and on the course of the disorder; and on some whose thoughts are not diverted from the consideration of their condition, the absence of a variety of impressions and of society would have a prejudicial effect. In seeking, therefore, to determine the advantage of Arcachon or of any other locality, in any given case, the peculiar temperament and idiosyncrasy of the patient, and the extent of the disease, its complicated or uncomplicated state require to be carefully considered.

Dr. Hameau has given a table of the mean

* The collector of resin from the fir trees, passes the week days in wood huts in the forest, living on black bread, water from the sands, coloured by the roots of trees, and on lard, very seldom having meat, and never wine, except on Sundays, when he has fresh mutton and the wine of the country. He works hard, summer and winter. He is thin and reaches an advanced age; he is seldom sick, and it is not known that a *resinier* was ever affected by pulmonary disease" (tuberculisation).

temperature of the months and seasons (deduced from observations of five years) in the forest, and on the shore of Arcachon, as compared with that of Bordeaux and Paris:—

	1855.				1856.			
	1	2	3	4	1	2	3	4
Winter (Dec., Jan., Feb.)...	10·5	9·2	7·4	4·7	11·6	11·4	8·6	6·4
Spring	17·0	16·1	14·5	10·6	17·7	15·8	14·8	11·7
Summer.....	27·4	21·6	24·7	18·9	26·1	23·8	24·3	21·3
Autumn.....	19·5	16·3	14·7	11·6	17·5	16·1	15·0	12·3
Mean of year	19·6	17·3	15·2	11·6	18·2	16·6	15·6	12·9

Mean of five years 1855-1859: Forest, 19·4; Shore, 17·1.

	1857.			1858.			1859.		
	1	2	3	1	2	3	1	2	3
Winter	9·1	8·1	7·8	13·0	11·6	8·2	10·9	8·5	9·3
Spring.....	17·0	15·1	15·5	18·3	17·2	17·2	21·4	17·8	17·7
Summer	27·4	24·5	26·3	27·9	25·2	25·8	29·5	26·6	27·0
Autumn	21·5	19·2	16·3	20·2	18·8	18·1	20·7	15·1	17·7
Mean of year	19·0	16·8	16·7	19·8	18·1	17·0	20·6	17·0	17·9

Bordeaux, 16·4; Paris (1855-56), 12·2.

The mere mean temperature of a locality is however but an indifferent criterion of the superiority of the climate. In an introductory address to the association of the King and Queen's College of Physicians in Ireland (delivered on opening the session of 1860-61), Dr. (now Sir Dominic) Corrigan, speaking of the effect of climate, and particularly

of that of Arcachon, remarked: "the two great points to which attention is generally given as regards the atmospheric relations of a locality, are its mean temperature and the quantity of rain that falls; and we sometimes find the comparative merits of two places summarily disposed of, by stating that such a place is preferable to such another because its mean temperature is ten degrees higher. There is no more fallacious guide than mean temperature. Two places may possess the same mean temperature, and yet their climates, and the effects on the bronchial membrane may be very different. Another point of great importance is the duration of time within which the alternations of temperature may occur. If alternations occur, though of trifling amount, within very short periods they are injurious, if they occur slowly, they are borne with comparative impunity. In addition to the mean temperature, then, we require to know the lowest temperature of a place, and the highest, and duration of time occupied in the change from the one to the other.

"A similar fallacy" Dr. Corrigan added "often occurs in reports as to humidity as occurs in temperature. Two places are compared with regard to the mean fall of rain in them, and one is declared as preferable to the other and drier, on

the ground that the mean fall of rain is less, although in reality, the locality in which the greater fall takes place may be the drier and healthier of the two; more rain will fall in a thunder shower in half an hour, in a warm, clear, region of the south, than may fall in a drizzling mist-like rain of two days duration in a foggy, sunless region; and while the latter exerts a continuously injurious action on the skin and mucous membrane, the short, but dense pour of rain of the former removes all harshness from the air, and is quickly succeeded by sunshine and warmth, bringing with them joyousness and health."

Speaking of Arcachon and its claim as a residence for some pulmonary residents in the spring months, Dr. Corrigan further remarked:— "So completely is the whole basin surrounded by *dunes* or low ranges of sand hills, that no storm that rages over the Atlantic ever raises waves in the bay; and while the sand hills are just high enough to act as shelter, they are not sufficiently elevated or abrupt to give rise to squalls or generate cold winds. In addition to the sand hills or *dunes*, the north-east-east and south are belted by an almost interminable forest of pines of great size and height. Thus Arcachon has the advantage of being sheltered by hilly ranges and forests from

violent winds, as these must pass over it at a considerable elevation, while the air that reaches it from the north and west loses its harshness in passing over a considerable extent of sea surface, it presents the additional advantage of sea air without the violence of sea gales.

"The whole air is perceptibly impregnated with the balsamic odour of turpentine, and we know that the balsams and turpentines in vapour are remedial agents of much power in bronchial affections. This impregnation arises not merely from the presence of pine forests on a great scale, but from the gathering of turpentine or resin from the live trees; and this trade and its products now constitute the main wealth of the district. The *resiniers* early in spring, select trees of not less than a metre in circumference, and scrape away the outer bark of several feet high and about six inches wide. From the exposed portion of the trunk a rapid oozing of turpentine immediately commences, and continues the whole summer in such quantities, that wooden vessels are placed at the foot of every tree to receive it. All the turpentine being scraped off, the opposite side of the tree is treated in like manner the succeeding summer. The air passing through this vast forest, must at all times be more or less deeply impregnated with turpentine, and it

is not, probably, without reason, that much efficacy is attributed to it.*

"Arcachon remained a 'terra incognita,' until 1826, when Captain Legallais, of the merchant service, who had made frequent voyages to India, built there a hotel and bath, after the model of a 'bungalow,' a one-storied house, with a verandah running round it into which all the rooms open. The model has been universally adopted, and Arcachon now consists of hundreds of such isolated houses with mangolias, oleanders, and orange trees (I did not see any orange trees) around them, giving the whole place a picturesque appearance of clusters of Indian bungalows in an American pine-clearing. In 1846, the opening of the railway gave a fresh impetus to its progress, and Arcachon is now apparently and deservedly one of the most favourite spring residences in the south-west of France for invalids labouring under some forms of pulmonary affections."

Dr. Lombard remarks respecting the climate of Arcachon:—"The summer heat is lessened by the wood which forms a dome impenetrable to the sun's rays; moreover, the neighbourhood of the sea, and the prevalence of the westerly winds, render the cold of winter less severe and prolonged.

* The tree is the "pinus maritima."

We here find a pleasant beach for bathing, and a favourable winter abode for those persons labouring under pulmonary disease, who require a moist and temperate climate. The mean annual temperature is 15°. The mean of winter is 8° on the north of the beach, and 10° in the interior of the wood: 2·15 higher than that of Pau.

"The rains are frequent and copious, especially in autumn and winter. In the month of May, likewise, sudden and heavy showers occur. Northerly winds blow on an average on 185 days, or for half the year: east, west, and south winds prevail during the other half. It is owing to their influence that the torrential rains fall in winter, and sometimes in spring. If this rainy weather is displeasing to the inhabitants and to visitors, it must be remembered that the humidity which it causes in the air, conduces to render the climate very favourable to persons with delicate chests, of a nervous and irritable constitution. The soil being sandy, the humidity is soon absorbed, so that there is never a large proportion of aqueous vapour in the atmosphere. The winter climate is very favourable for invalids of a nervous and excitable constitution, for consumptive patients liable to hemorrhage, or exhausted by copious

muco-purulent expectoration; it is especially in these cases that a residence in the forest would be productive of good results, both on account of the mildness of the temperature, and the resinous odour from the pine trees."*

The following observations have been published by Dr. Hameau, since the appearance of the preceding edition of this work.

"The climate of Arcachon, is analogous with that of Bordeaux in so far as relates to its general characteristics, but it has special peculiarities depending, (1) upon the neighbourhood of Arcachon to the sea, from which it is only separated on the west by a series of *dunes* covered with pine-wood, and by the large basin, which opens to the south; (2) the obstacle which these pine-woods present against the impulsion of winds from the west, south-west, south, south-east, and east; (3) the extent of the bay over which north and north-east winds must pass before reaching Arcachon, in consequence of which they become laden with a certain amount of humidity calculated to correct their dryness, tempering them in summer, and communicating to them a little warmth in winter; (4) the temperature of the sea which is higher than that of the air in the cold season, and lower

* "Les Stations des Alpes et des Pyrénées comparées."

in the hot season; (5) the shelter afforded by the evergreen pine trees both from the sun's heat and from winds; (6) the hygrometric state of the air which would give rise to a prejudicial humidity if the extremely permeable soil did not render any liquid stagnation impossible; (7) the very remarkable ozono-metric state, which attains the highest degree of Berigny's scale in the forest during the winter; (8) the rich evergreen vegetation; (9) the resinous emanations from the pine trees; (10) the little elevation of the ground above the sea, and consequently the greatest possible barometric pressure.

"The physiological impression produced upon the system by the contact of the Arcachon air is soft and at length enervating; whereas at Nice, it is sharp and exciting. We may hence conclude, *a priori*, that a sojourn in the Provence district is tonic, and adapted to remedy lymphatic torpor, whereas a sojourn on the south-west of Aquitaine is sedative, and is suited to cases where there is nervous predominence.

"Among consumptive patients there are only a certain number who can obtain amelioration and sometimes even a cure by residing in the pine wood; whereas others experience an aggravation of their condition. The resinous atmosphere of

Arcachon is suited to the erethitic form of phthsis, with predominance of the nervous temperament, whether original or acquired; it is prejudicial in the torpid form, with predominance of the lymphatic temperament.

"This therapeutical indication is not restricted to tuberculous diseases, but it extends to all diseases in which the erethitic nervous state plays the chief part—as in certain nervous affections, hysteria, asthma, &c. Children of this temperament affected with bronchitis, generally derive much benefit from a residence at Arcachon. Consumptive subjects of a lymphatic temperament, who do not bear well the sedative atmosphere of the pine forest, constantly feel better when residing on the shore.

"The forest begins near the extremity of the first boulevard. Between this boulevard and the *dune* there is an intermediate region, in one part narrowed, in another wide, which is habitable at all seasons, and suits certain patients better than either of the others: those patients in whom the disease has scarcely become manifest, or who are threatened with it, require alternatives of excitation and sedation, or else those in whom the physician perceiving no formal indication, desires to avoid either extreme.

"All years are not equally favourable for the treatment of phthisis by change of residence; and whatsoever differences there may be in sanitary stations, they do not lose the character proper to their climate, notwithstanding casual irregularities of weather. Of late years we have had complaints respecting the cold and snow which prevailed more especially in the Mediterranean region. The winter of 1864-5 was exceptionally rainy all over the south. These are climatic exceptional inconveniences from which patients suffer, and which are everywhere inevitable, and can only be counteracted in their effects by the superior comfort of houses and lodgings."

Dr. Hameau thus sums up his observations on the applicability of the climate in chronic pulmonary disease, and terminates with the relation of several corroborative cases: "1. The climate has a sedative action on the nervous system. 2. It places certain consumptive patients in a medium favourable to the cure of their disease; and always procures a greater or less degree of amelioration where there is a predominance of the nervous system. 3. It favours the cure of chronic bronchitis under similar circumstances. 4. It is prejudicial in all chest diseases, affecting persons of a

lymphatic temperament. 5. It suits the majority of asthmatic patients." *

Among the trees and shrubs indigenous to more southern zones, that thrive at Arcachon, may be specified, the olive tree, the rose laurel, myrtle, pomegranate, aloes, *mimosa dealbata*, and the fig tree, which grows to a large size and produces excellent fruit.

I have known several patients whose state has been materially ameliorated by a longer or shorter sojourn at Arcachon; which it will be seen from what has preceded is suitable to the same category of patients labouring under disease of the lungs and air passages, as well as to other disorders, as have been mentioned under the head of Pau; but while it has a somewhat milder temperature in winter, it has at the same time a more agitated atmosphere, and on this account would be likely to suit many patients for a protracted sojourn, for whom Pau might at length be found relaxing. As Arcachon presents the advantages of houses being let by the single month, persons who pass two or three winter months at Pau would often derive benefit from the change, at a season when the

* "De l'Influence du Climat d'Arcachon." Bordeaux, 1866.

weather is not generally rainy. The same may oe said with reference to the Biarritz visitors, who, by removing to Arcachon in the spring, would in great measure avoid the Atlantic gales to which this coast is exposed at that time of the year.

METEOROLOGICAL TABLE FOR PAU,

DEDUCED FROM TEN YEARS' OBSERVATIONS, 1854 TO 1863, INCLUSIVE.

(Supplied by Dr. Ottley.)

TEN YEARS.	THERMOMETRICAL OBSERVATIONS.			CALCULATED MEANS.			MEAN DIRECTION OF WIND.		RAIN FALL.	DAYS	HYGROMETRICAL OBSERVATIONS.	
1854 to 1864.	Mean Lowest.	Mean Highest	Mean at 9.0 a.m.	Mean of Month.	Mean day temperature.	Mean daily range.	Easterly.	Westerly.	In inches and 1,000	on which rain fell.	Mean moisture of air at 9.0 a.m.	Mean moisture at 2.0 p.m.
January	35·2	48	39·4	41	43·7	12·8	19	9	3·217	12	82	71
February	37	51·1	41·9	43·3	46·5	14·1	17	9	2·264	9	80	63
March	41·7	56·2	48·5	48·1	52·3	14·5	14	14	4·539	13	79	64
April	46·8	63.4	55·4	53·9	59·4	16·6	12	14	4·948	12	71	59
May	50·3	65·5	59·1	56·5	64·3	15·2	7·5	20	7·432	18	74	60
June	55·9	73	65·1	62·6	69·0	17·1	9	17	5·123	13	73	52
July	59·4	76·5	69·5	66·5	73·0	17·1	9	16	1·917	8	72	—
August	59·9	78·1	69·6	67·5	78·8	18·2	10	14	2·064	9	72	—
September	55·8	73	64·8	63·5	68·9	17·2	15	9	4·169	9	76	—
October	49·9	65·3	56·7	56·6	61·0	15·4	19	10	4·320	12	80	65
November	41·	54·5	45·8	46·7	50·1	14.5	19	8	3.323	13	82	70
December	37·4	48·7	41·1	43	44·9	11·3	17	10	4·625	12	83	71
Year	47·5	62·8	54·7	54·1	58·7	15·3	167·5	150	47·941	140	77	—

BIARRITZ WEATHER DURING THE WINTERS FROM 1863 TO 1868.

(Supplied by Dr. Chapman.)

MONTHS.	MINIM.	9 A.M.		2 P.M.		RAIN FALL.	BAROMETER.		WIND.	GENERAL CHARACTER.
1863.	Dry Bulb at Night.	Dry B.	Wet B.	Dry B.	Wet B.	Inches.	9 a.m.	2 p.m.	Prevailing Wind and Force.	Rain Days.
October	54·	59·97	53·37	63·91	61·10	—	—	—		
November	46·50	53 50	49·40	58·20	52·10	8·	—	—	W. 4	11
December	41·74	45·51	—	50·45	—	4·	30·19	30·17	W. 4	10
1864.										
January	39·36	43·17	44·50	49·61	47·37	6·	30·10	30·09	W. 3	5
February	38·68	43·59	41·48	49·61	44·11	2·	29·86	29·80	SW. 3½	7
March	47·50	54·16	49·79	58·26	52·53	3·	·69	29·69	NW. 5	13
April	50·15	58·25	54·98	61·28	56·21	·50	·98	·98	NW. 4½	6
October	54·87	60·38	56·48	65·74	59·83	7·	29·40	29·98	W. 3½	6
November	46·	51·04	49·27	54·80	51·57	10·	·99	·84	W. 4 2-3rd	12
December	38·60	42·67	41·12	48·20	44·89	2·	·86	·84	E. 3 2-3rd	12
1865.										
January	42·17	49·09	47·15	52·70	50·35	8·	·75	·74	W. 4⅓	19
February	40·52	45·66	45·	50·06	48·46	5·	·99	·98	NW. 4	13
March	39·	44·77	43·20	48·46	42·25	8·	·85	·89	NW. 4½	14
April	53·22	60·10	53·64	63·99	59·57	3·	30·03	·99	W. 3	11

October	57·18	62·41	59·87	67·50	63·1	—	29·75	·73	W. $4\frac{3}{4}$	17
November	49·68	53·65	50·08	59·72	56·	2·	·90	·88	W. $4\frac{1}{2}$	8
December	38·	41·71	40·12	51·27	48·25	1·50	30·12	30·11	E. $3\frac{1}{2}$	9
1866.										
January	44·20	48·26	46·43	55·62	51·92	4·	·16	·12	W. $3\frac{1}{2}$	7
February	46·24	50·	48·25	54·42	52·15	6·	29·91	29·90	W. 4	14
March	45·50	50·18	48·04	55·64	52·09	9·	·64	·64	W. 4	17
April	50·51	58·67	55·45	65·02	59·99	4·	·82	·82	W. $3\frac{3}{4}$	9
October	55·94	62·46	59·45	66·45	61·62	6·58	30·02	30·02	W. 3	11
November	46·60	51·60	49·50	56·75	53·30	1·61	·09	·07	W. $3\frac{1}{2}$	9
December	42·30	51·	49·09	54·73	52·27	2·21	·13	·12	W. E. $3\frac{1}{4}$	11
1867.										
January	44·06	48·20	47·98	51·73	51·33	6·45	29·77	29·71	W. $3\frac{1}{2}$	13
February	46·10	51·56	49·36	56·92	52·87	2·75	30·21	30·19	E. W. $3\frac{1}{2}$	9
March	47·62	54·70	51·55	59·43	54·36	3·31	29·65	29·61	WNW. $3\frac{1}{2}$	12
April	50·99	56·50	54·	61·10	56·48	2·63	30·	30·	WNW. $3\frac{1}{2}$	13
October	40·94	55·45	54·09	59·51	56 73	5·06	30·06	·05	NW. 3	12
November	41·82	46·41	44·71	53·95	50·15	·52	·12	·06	ENE. $2\frac{3}{4}$	2
1868.										
January	38 21	42·16	—	52·22	49·50	3·09	·13	·11	NE.3 5.9th	11
February	40·66	44·31	42·78	51·38	47·81	·58	·30	·28	W. SW. $3\frac{1}{2}$	6
March	43·70	48·73	46·89	53·87	50·04	3·83	·18	·26	N. SW. $2\frac{1}{4}$	16
April	47·68	54·36	51·46	59·38	55·06	1·38	·06	·08	E. $3\frac{1}{4}$	7
Means	45·85	51·29	49·33	56·43	52·88	—	29 95	29·96		

WEATHER TABLE FOR THE WINTER OF 1863-4 AT PAU AND BIARRITZ (Dr. Ottley.)

		Novem.	Decem.	Jan.	Feb.	March.	April.	May.
Mean temperature of each month, calculated from three daily observations	Pau	46·9	42·2	39·6	40·1	50·8	54·9	59·8
	Biarritz.	50·2	46·1	44·2	43·9	51·8	54·3	60·1
Mean of lowest temperature...	P.	41·3	37·5	34·3	34·4	44·3	48·	53·5
	B.	46·5	41·7	39·3	38·7	47·5	50·1	55·6
Mean of highest temperature	P.	54·2	46·8	46·7	47·4	59·1	63·7	69·3
	B.	54·9	50·4	49·6	49·6	58·2	61·2	67·2
Number of nights on which the thermometer fell to freezing point	P.	2	4	7	15	0	0	0
	B.	0	4	7	10	0	0	0
Wind.—Mean force, at 9.0 a.m. estimated	P.	1·2	0·7	1·2	1·2	1.6	1·1	1·1
	B.	—	—	3·0	3·3	4·8	4·3	5·1
Rain.—Number of days on which rain or snow fell	P.	9	9	7	9	12	8	10
	B.	10	13	7	10	6	4	6
Rain fell in inches and hundredths	P.	3.60	1·78	2.69	2.51	2·76	2·93	3·66
	B.	6·39	4·24	6.11	2·40	3·83	0·94	5·29
Moisture of air.—Mean at 9.0 a.m.	P.	81	83	81	78	73	74	72
	B.	—	—	89	84	80	80	82

MEAN TEMPERATURE AND RAINFALL AT ARCACHON DURING THE THREE LAST YEARS—

(CENTIGRADE) DR. HAMEAU.

	1865.		1866.		1867.	
	8 a.m.	Noon.	8 a.m.	Noon.	8 a.m.	N oon.
Winter	5·2	7·9	6·4	11·3	8·1	11·9
Spring.....	13·1	17·6	11·7	15·7	13·7	17·6
Summer	20·6	24·3	19·5	22·7	20·6	24.9
Autumn	14·2	19·1	15·7	20·2	12·5	16.8
Year	13·2	17·2	13·5	17.5	13·7	16·9

AMOUNT OF RAIN AND NUMBER OF DAYS ON WHICH RAIN FELL.

	1865.		1866.		1867.	
	Amount	Days	Amount	Days	Amount	Days
Winter	556·3	45	198·0	32	215·4	34
Spring	201·7	40	194·6	32	154·5	29
Summer	140·5	22	199·6	32	121·9	14
Autumn	209·2	28	73·0	24	271·0	24
Year.....	807·7	135	665·2	120	762·8	102

APPENDIX.

ON THE INFLUENCE OF CLIMATE

IN THE

PREVENTION AND CURE

OF

CHRONIC TUBERCULAR PHTHISIS.*

In offering to the consideration of the Medical Section of the Scientific Congress, the following brief observations respecting the influence of climate as a prophylactic and remedial agent in tuberculous disease of the lungs, I assume, as a basis, the conviction now generally entertained by the most enlightened members of the medical profession, that this disease is curable in a certain proportion of cases; and even when not curable, that its progress may very often be arrested, so as to enable the patient to live for a long time in a tolerable state, and exempt from suffering. The opinion of the incurability of pulmonary consumption which formerly prevailed, was in great measure owing to the erroneous idea that was very generally formed of the nature of the disease—the attention of practitioners and of the public being too exclusively restricted to the local organic lesion, without taking sufficiently into account

* Abstract of a communication read and discussed at the annual meeting of the Scientific Congress of France, held at Aix, in Provence, and at Nice, in December, 1866.

the abnormal condition of the system on which the lesion depended, and the predisposing causes which chiefly tended to produce it. The treatment, being directed in this sense, at best only occasioned partial and temporary ameliorations, while almost invariably the disease progressed more or less rapidly to its fatal termination.

That the morbid condition of the system which gives rise to pulmonary phthisis (when not of an hereditary nature) is mainly referrible to anti-hygienic atmospheric influences, is proved by the general prevalence of the disease among the population of countries and localities where similar influences are most observed, and among those classes who are most exposed to their action. Thus, in all countries where the climate during the greater part of the year is humid, and at the same time cold and variable, consumption prevails to a much greater extent than elsewhere. That this prevalence is not owing to the low temperature, nor to the variations of the atmosphere separately considered, but is referrible to its humidity, is demonstrated by the circumstance that in many parts of Russia, in Sweden, Norway, and other northern countries where the air is dry, the disease is of unfrequent occurrence; whereas, it is extremely prevalent in many parts of France, in Germany, in Great Britain, and Ireland, where humidity is a predominating characteristic of the climate. Nowhere is the mortality from phthisis greater than in Holland.

In the above-mentioned northern countries, the inhabitants are for the most part engaged in out-door avocations, and are but little addicted to in-door and sedentary pursuits, in which a large proportion of the population of countries more advanced in civilisation is engaged, and which materially conduce to deteriorate the constitution—in the same way as humidity—by preventing the free action of the skin, and thus predis-

pose to pulmonary disease; whereas, an active out-door life, in fine dry weather, greatly promotes this action, and acts as a preventive.

On the other hand, in countries where humidity is combined with heat, consumption is prevalent, as in several portions of Africa, Asia, and South America, especially in the Lower Brazils, several of the West India Islands, the shores of Peru; whereas in the mountainous regions of these countries, as the elevated plateaus of Peru and Mexico, where the air is light and dry, it is almost unknown among the indigenous population.

A French physician made a series of observations several years ago in his own, and in other countries, in order to ascertain the relative frequency of tubercular disease among the inhabitants of different localities, under different circumstances of situation and mode of life, and he remarks with respect to France—that in the small towns, where the population is composed of agriculturists, artisans, and trades-people, the proportion of deaths from pulmonary consumption is as one to forty or fifty of the general mortality, where the towns are situate on the acclivity of mountains, on elevated table-lands, in dry valleys accessible to winds, or in fertile plains, but that, under these conditions, the disease does not occur with the same degree of frequency in the different classes—"It is very rare among the agriculturists and artisans, who actively exercise their limbs, but it attacks almost exclusively persons who usually remain in-doors, using only their hands or fingers for their work. Individuals who are exposed to the action of humidity only while at work, do not become consumptive, where their physical powers are actively engaged, as tanners, wool-washers, washer-women, dyers, the expansive and sudorific influence of muscular exercise sufficing to preserve them from the disease.

"In villages favourably situate, where there are no sedentary avocations, and where the inhabitants are engaged in working in the fields, the average mortality from consumption is not more than one in eighty of the general mortality. Hence it may be laid down as a principle, that in order to preserve men and animals from tubercular affections they must be freely exposed to atmospheric influences.

"In Holland, sedentary occupations concur with humidity to increase the amount of pulmonary consumption. What more especially predisposes women to this affection is their lymphatic constitution and sedentary mode of life, for the women who inhabit the healthy villages of France, Belgium, or Italy, and who, like the men, follow agricultural pursuits, are exempt. But in the damp climates of Holland and England, the conditions are no longer the same. The humidity exerts a general influence which muscular exercise cannot always counteract; it even happens that by producing sweating, exercise renders the body more subject to the concentered and debilitating influence of cold and humidity.

"The effects of seclusion and sedentary occupation are seen on a large scale among the work-people employed in the silk manufactories at Lyons (where moreover, the climate is very humid). It appears, from a statement of M.M. Brachet and Rougier, physicians to the hospital, that out of 250 deaths occurring in this section of the population, 82 were from consumption. At Nismes, notwithstanding the superiority of the climate, the silk manufactories favour the development of scrofula and phthisis, which circumstance arises from the operatives constantly remaining within doors, for at Arles most of the consumptive patients who died in the hospital had pursued sedentary occupations, not connected with silk works. The proportion of deaths from this disease to the general mortality was one-third. At

Rouen the two most general causes of tuberculous disease—humidity and working in the manufactories—exert their influence upon the population. One-fourth of the patients who die in the hospitals succumb to consumption, which is much less frequent among other working classes not suffering from privation. It is very rare among those who work in the port, and among sailors, as also among the dyers, who are very numerous along the banks of the little river Robec. The former of these classes are robust, well-fed, and often intemperate. But in both these classes of operatives the expansive and sudorific action of exercise suffices to counteract the noxious influence of external agencies—viz., the dampness of the climate, and of the localities where it is most prevalent.

"In examining the influence of humidity, under different conditions, we see that it gives rise to serious acute diseases, and to various chronic diseases, by acting chiefly on the skin. Two general causes predominate over all others in producing the majority of chronic diseases—viz., want of muscular exercise, and humidity. These causes act chiefly upon the skin; and they tend incessantly to throw back into the stream of the circulation superfluous and excremential elements, which should be eliminated from the economy; thus are induced alterations in the state of the blood, and cachexies, the cause of which was formerly unknown.

"By examining the products of perspiration during hard labour or violent exercise, we may form some estimate of the prejudicial effects of habitual inactivity upon the animal economy. After violent bodily exercise the skin is bathed in sweat, as is also the clothing in contact with it—the lactic acid soils the linen. In the passive state, the same elements (lactic acid, water, salts of various kinds, &c.) are retained in excess in the economy; men and animals become fat; the water ends to diffuse itself in the textures; the salts tend to

form other combinations, and the excess of lactic acid becomes the cause of various diseases, the form and nature of which vary according to climates, localities, and the age of individuals.

"The treatment of pulmonary consumption usually terminates where it ought to have begun. Consumptive patients are sent to Italy or the South of France at a period when there is no longer hope. In this treatment, everything is interverted. Measures are directed towards the lungs when they should be directed to excite the functions of the skin."*

These observations, it will be seen, were made many years ago, but subsequent experience has tended to confirm the general justness of the author's conclusions. A high authority on the subject of climate (Sir James Clarke) likewise observed on this head many years ago:—"The effect of sedentary habits is most pernicious, and there is, perhaps, no cause (not excepting hereditary predisposition) which exerts such a decided influence in the production of consumption as the privation of fresh air and free exercise. These operate as the principal causes of its greater frequency among the females of the higher classes."

Mr. Ancell, in his work on Tuberculosis, cites on this point the testimony of Dr. Guy, who found, in the close workshop of a printing establishment, that the compositors, whose employment is sedentary, fell victims to phthisis in the proportion of 74 to 100, the proportion being 31 per 100 in the pressmen, who, though breathing the same air, and in every respect subject to the same habits of life as the compositors, differ only in being engaged on the active bodily exercise of the press; and that among the same class of operatives the deaths from this cause did not exceed 25 per cent. in those who used exercise in the open air.

* Des causes generalis des maladies chroniques; specialement de la Phthisie Pulmonaire. Par le Dr. Fourcault. Paris, 1844.

In men following in-door occupations, the ratio is highest when there is least exertion, and lowest in employments requiring strong exertion. In the hospital for consumption at Brompton, the relative liability was found to be 63 per cent. of working in-door males, to 30 per cent. on out-door; and all the consumptive females followed in-door occupations.

It is true that in some places, characterised by dryness of the atmosphere, as in Provence, especially in Marseilles and some of the smaller towns on this coast of the Mediterranean, there is a tolerably large mortality from chronic pulmonary disease, which, though generally set down to the amount of tubercular phthisis, is not always referrible to this origin, and is produced by different causes to those already specified. At Marseilles, where there are no protecting hills, and where the influence of the sharp north-west wind, or *mistral*, is severely felt, the transitions of temperature are very great and sudden, and these acting on constitutions enfeebled by poor living, and exposure to the oppressive heat of summer, very often produce inflammatory affections of the lungs and air-passages, which terminate after repeated relapses in consumption. The same thing is seen, to a certain extent, in the genial winter atmosphere of Nice; but that the disease is not attributable to the climate is proved by the circumstance, that it is mostly restricted to the poorer classes who live in the low confined streets of the old town, and are badly fed and clothed, whereas the other classes of the population, as also the inhabitants of the neighbouring country, are in great measure exempt. This I have been able to ascertain from observation and enquiries on the spot; and I find it stated by a distinguished medical writer of the time of the first French republic, that "in Italy, and in some of our southern climates, pulmonary phthisis generally depends upon slow inflammation of the organs of respiration. In cold

and damp countries slow inflammation of the lungs is of rare occurrence. Phthisis is there generally owing to other causes."* This is well seen in Egypt, which presents two different characters of climate. In Alexandria and in the Delta of the Nile, where humidity prevails, combined with warmth, the chronic form of tubercular phthisis is very common both among the natives and Europeans there residing; whereas in Upper Egypt, where dryness (also combined with warmth) is the predominating character of the atmosphere, the disease is but rarely met with, unless among the Abyssinians, who, descending from their hotter country to the valley of the Nile, are the more easily affected by the comparative coolness and the great variations of temperature to which this district is subject. In the desert, however, where those causes are not operative, the disease in the chronic form may be said to be almost unknown.

From what has been advanced we may reasonably conclude, that the most effectual way to prevent the supervention of tuberculous disease of the lungs in those who have shown a predisposition to its occurrence, and to cure it when existing, and not so far advanced as to be irremediable, is to place the patient, who may have been subjected to the predisposing causes referred to, under totally opposite climatic conditions during the more unfavourable part of the year; and this conclusion is justified by the results which have attended the judicious emigration of pulmonary invalids to more favourable winter resorts than exist in northern countries.

The efficacy of a residence in southern climatic Sanataria, says a German medical writer, is to be ascribed especially to the greater warmth of the southern winter. By removing a patient labouring under pulmonary dis-

* Cabanis. Rapports du Physique et du Moral de l'Homne. Section, Influence des Climats sur les Habitudes Morales.

ease to one of those southern localities a double advantage is obtained—first, the negative, that the patient escapes the injurious influences of the northern winter, whereby his lungs and constitution are afforded an opportunity of recovering; secondly, the positive and direct, arising from the frequent enjoyment of a mild and pure atmosphere, and the power of taking bodily exercise, advantageous alike to the respiration, and the nutriment of the body.

"It may be taken as a rule, that the moister the climate is, the more uniform will be the temperature, but it is, at the same time, to be observed, that the moister the air, so much the more will the cold be felt, particularly where the air is in motion, and so much the more particularly will be the variations of temperature. While, when the air is dry, neither the cold nor the variations of temperature, which in this case are certainly more considerable, are similarly felt. It is also to be observed, that the humidity of the air does not directly coincide with the frequency of rain. Frequency of rain is not necessarily connected with a moist climate. A climatic agent, to which little value is usually attached, but the importance of which, to invalids, should not be underrated, is the clearness of the sky. 'The degree of habitual clearness and brightness of the heavens,' says Humboldt (Cosmos), 'is important, not merely for the increased warming of the ground, the organic development of plants, and the ripening of fruits, but also for the sensations and entire disposition of man.' When we consider that a cloudy day depresses a healthy man, while, on the contrary, a clear day excites and enlivens his spirits, how much more is not the case with an invalid, and how important, in this instance, is the reflexion thereof upon the bodily condition. But an invalid who leaves his home on account of his health, and lives in a strange neighbourhood, and under unusual circumstances, has a very

peculiar need of such external stimulus. A blue sky and bright sunshine give an additional charm to nature, and the contemplation of nature occupies, calms, and rejoices the patient. His thoughts are withdrawn from his own sufferings; he is animated to the enjoyment of the open air, and to bodily exercise. In this respect we must regard the greater clearness of the sky, which is peculiar to southern regions, as being in itself favourable to the cure of these diseases.

"Much importance has been attached to uniformity of temperature, and it is certain that great and sudden changes act injuriously on those affected with pulmonary disease, but a moderate alternation has, for the most part, a beneficially exciting and strengthening influence on them, particularly on those who are of a weakly constitution, while too great uniformity may produce a prejudicial relaxation. We observe this often in our summer. Where an elevated temperature has prevailed during the day, a mild night and morning coolness have a peculiarly animating and refreshing effect, both on the healthy and on invalids. Alternations of temperature have no longer an injurious influence when they occur with a certain constancy and regularity."*

Experience has abundantly demonstrated of late that a too uniform temperature and state of weather is not the best adapted to procure lasting amelioration in the majority of cases of chronic pulmonary disease; its continued action on northern constitutions, accustomed to atmospheric variations, producing, in some measure, analogous effects on them to that of a hot-house upon plants, which are unable to bear the action of the outward air. It is true that where there exists much general excitation or inflammatory action in the affected organs, then repose, as far as possible, becomes a matter of necessity, and a uniform moister climate,

* Dr. Rullmann "On the Therapeutic Influence of Southern Climatic Sanatoria." Churchill, 1861.

where the air is not agitated by winds, would be advisable; but where such excitation does not exist, or exists only in a slight degree, as in most scrofulous or lymphathic subjects, a certain extent of atmospheric variation, as well as moderate exercise of the lungs and of the muscular system, are highly advantageous—tending to improve the general state of the constitution, and to prevent a further deposit of the morbid secretions.

Again, patients whose lungs are extensively diseased, may not unfrequently vegetate in a warm, moist, uniform climate longer than elsewhere—though even they often feel greatly relaxed by the enervating influence of such a climate; but others less unfavourably circumstanced would, in most instances, from its prolonged action on their system, be incapacitated from encountering, without great risk and considerable discomfort, even the moderate atmospheric changes to which they must be subjected on removing from a locality possessing a similar climate.

As this is a point upon which much misapprehension has prevailed, I will subjoin the opinion of our highest authority on climate respecting it. "Long residence in a very equable climate," says Sir James Clark, "is not congenial to health, even with all the advantages of exercise in the open air; a moderate range of temperature and of atmospheric changes seems to be necessary for the maintenance of health, and hence many invalids who derive much benefit from a temporary residence in a mild sheltered situation, do not bear as long residence in such an atmosphere without injury." Dr. Combe remarked during his residence at Madeira "that the invalids were better when the temperature was less steady and the atmosphere more variable, than when the season was unusually mild and equable." I have remarked the same effects resulting from a long residence in some of the more sheltered spots in our island. Such

situations form excellent residences for a time, after which the patient ceases to improve, and rather loses than gains strength. A long residence in very mild sheltered positions I regard as unsuitable to young persons predisposed to tubercular disease.

"Atmospheric vicissitudes," says a writer on the climate of Nice (Dr. Wahu), "have not so great an influence on the production of phthisis as has been supposed." Dr. Thozolan, physician to the Shah of Persia, wrote from Mianich to the President of the Council of Health for the Army—"One of the most singular facts which I have ascertained here, is the rarity of affections of the respiratory apparatus, especially phthisis, for perhaps nowhere else are the thermometrical changes greater, more decided, or of more frequent occurrence than in this country. One of the most remarkable conditions of the atmosphere of Persia, is its great dryness."* A late eminent London physician likewise observed, with respect to the effect of variations of temperature upon consumptive patients:—"We must be cautious not to carry our anxiety too far, for it is an undoubted fact, that within the limits of rational hardihood, exposure to the open air and to the vicissitudes of the atmosphere is the best safeguard against the attacks of phthisis in those who are predisposed. *It is to the effects produced upon the skin* that great part of the benefit derived from residence in a mild climate is probably attributable; atmospheric exposure is a very important point during the winter months: in our variable climate it is inadmissible."†

* The infrequency of tubercular phthisis in dry cold northern regions has been shewn. The effect of a dry air as a remedial measure even in very cold climates, where there exists in the patients a sufficient amount of reactive power—is adverted to by a non-medical writer, who says of the climate of Lower Canada: "Its winter is long and severe. In the neighbourhood of Quebec, cold is not much exceeded by that within the polar circle, but the dryness of the air is so great, that it is strongly recommended to those of consumptive tendencies. I have seen a wonderful effect produced in the early stage of pulmonary disorders, by a removal from the damp and variable climate of Europe to the dry bracing atmosphere of Lower Canada"—*The Englishwoman in America.*

† The Practice of Physic by Doctors Bright and Addison.

In my prize essay on the "Effect of Climate on Tuberculous Disease," I have endeavoured to show that climate acts most beneficially by favouring the insensible cutaneous excretion, the partial or total suppression of which, from the continued operation of a humid atmosphere, I regard as a principal predisposing cause of the formation of tubercle in the lungs, and to promote this object by other than artificial means, regular exercise in the open air, regulated, of course, by the patient's amount of strength, is indispensable. There is, I think, no doubt that horse-exercise is beneficial in this way. Before the advantages of climate were appreciated in consumption, our highest medical authority Sydenham, was quite enthusiastic in his praises of this exercise as a remedial means. "I have put," he says, "very many upon this exercise, in order to the cure of consumption, and I can truly say I have missed the cure of very few, insomuch that I think how fatal soever this disease be above all others, and how common soever, yet it is in this way more certainly cured than most diseases of less moment, provided always that this travelling be long persisted in, according to the age of the patient and the length of the disease, and provided also, that he goes into new places; for the change of air and diet do as considerably add to the cure as the exercise itself."*

Horse exercise acts, as do also sea voyages, in the same way, in promoting the insensible perspiration, which, in this case, is further favoured by the muscular exertion it entails, by carrying the body more or less rapidly through the air, which comes to much the same as if the body were quiescent, and the air agitated—as is generally the case on shipboard. The lungs themselves are but little affected by an agitated air, though the air-passages may be more or less so. "Air in motion," says Dr. Milne Edwards, in his work on the

* Works printed for the Sydenham Society, vol. ii.

Influence of Physical Agents on Life,' "acts only on exposed surfaces, as the integuments of the body; those of the lungs are sheltered, and notwithstanding their communication with the atmosphere, the agitation of the air has but a slight share in the quantity of vapour which they furnish. This consideration will serve to determine the choice of suitable places for the residence of delicate persons. Those to whom the evaporation from the lungs is injurious, ought to prefer an atmosphere less dry, but slightly agitated, whence it is important to obtain an agreeable freshness.

"The slight agitation of the air when its hygrometrical state and temperature are adapted to the system, produces such a feeling of well-being, that the chest dilates in consequence, and admits a larger proportion of air. Persons who have delicate lungs, owe, in great degree, the difficulty and oppression which they feel, to the smallness of their apartment. This difficulty decreases on their going into a large room, or the open air."

The avoidance of a too monotonous mode of life, and the patients maintaining a cheerful tone of mind, are essential adjuvants to the action of climate in effecting an amelioration in all cases, more especially when pulmonary disease has been mainly induced by the operation of depressing mental influences, as not unfrequently happens. The consideration as to the resources for mental and bodily occupation or recreation possessed by places in which patients with pulmonary disease are recommended to sojourn during the inclement seasons of the year, is therefore a most important one, and yet it appears to have been overlooked by some writers who, relying upon meteorological data, speak highly of the climates of particular localities, as favourable ones for consumptive invalids, although destitute of similar resources, and even of tolerable accommodation.

The conclusions deducible from the preceding brief

observations are, that the effects of climate in counteracting the causes most instrumental in the production and development of tubercular disease in the lungs should be estimated not merely with reference to the action of this agent upon the organs of respiration, but especially as respects its general influence on the system—a principal advantage which invalids derive from a winter's residence in a suitable southern locality being, that they are enabled to be much in the open air, which, by causing free expansion of the lungs, and a diminished susceptibility of the air-passages, by improving the functions of digestion, and especially by exciting those of the skin, through this means, and the influence of the sun's warmth, to greater activity than could be the case in persons who remain in-doors or under a cloudy sky, as also by inducing a cheerful tone of mind through such influence, and by the variety of objects calculated to divert the attention from dwelling upon the state of health. It is in this way that climate conduces most effectually to prevent the occurrence of phthisis when threatened; to rectify, when existing, that abnormal condition of the blood which gives rise to the formation of tubercle; and to obviate, better than by any other means the lesions which are the natural consequence, when they have not been allowed to proceed too far.

The places most calculated to meet these indications in a large proportion of impending or existing chronic cases of pulmonary phthisis, in subjects of a lymphatic or scrofulous constitution, are, in my opinion, those which lie along the Mediterranean coast, from Hyerès to San Remo, including Cannes, Nice, and its immediate neighbourhood, and Menton, all of which, though possessing climatic characteristics in common, are yet sufficiently distinguished from each other by local peculiarities as to shelter, more or less freedom from certain winds, &c., as to make them adapted to meet the par-

ticular requirements in individual cases. On the other hand, in patients of a sanguino-nervous temperament, and in cases where there is much excitability of the system, a similar climate would generally prove prejudicial, and Pau, with other stations in the south-west of France, would be most suitable.

A distinguished living physician, after remarking that "the fact of recovery from phthisis, *even in its most advanced stage*, (?) can no longer be doubted," adds, "by carefully observing the operations of nature, learning her methods of cure, imitating it as closely as possible, avoiding what she points out to be injurious, and furnishing what she evidently requires, that we at length arrive at rational indications of treatment." The most important means are attention to the air breathed, that is climate, to exercise, and diet. Adverting to "that exhilarating feeling which the traveller experiences during early Spring in the South of France, and on the borders of the Mediterranean, caused by the clear atmosphere, balmy air, and luxuriant landscapes," this author proceeds to say—"He who has felt that delightful sensation, and paid attention to its influences on his own bodily powers, will not easily abandon the idea that such influence, if rightly directed to the relief of certain morbid conditions, must have some effect."*

I have thus adduced various opinions of eminent men confirmatory of my own, as to the kind of climate most calculated to be beneficial to the majority of subjects predisposed to, or suffering from, pulmonary phthisis (in the early and middle stages). There are other places besides those I have referred to, possessing a

* The Pathology and Treatment of Pulmonary Consumption, by Dr. Hughes Bennett. Edinburgh, Second Edition. "Some years ago," says Dr. Bennett, "I succeeded in confining a consumptive patient to his own room for an entire winter. His spirits suffered greatly, but, on the whole, he supported the confinement with resolution. Next winter, however, nothing would induce him to remain at home, and one day he rushed out of the house, ascended Arthur's Seat, and was much better in consequence."

climate of a somewhat similar character, in so far as sunshine, a generally cloudless sky, absence of rain to any extent in winter, a light dry atmosphere, are concerned, and these are doubtless not unsuited, as resorts for the season, to many of the above specified cases; but there are considerable drawbacks to their being frequented in any great degree—independently of their increased distance from England, and their inaccessibility unless by sea; one of the principal of which is, that each is far from any other health resort, and if, soon after the patient's arrival, the place is found not to agree, there is no remedy but to remain, and get on as best he may, or to undertate another long journey at an unfavourable time of the year; or the climate may be beneficial for a certain period, as two or three months, after which, from its too great dryness and exciting quality, or, from other causes, its continuance may prove injurious, and a change may be advisable, when the same difficulty would occur; for, climate, like any therapeutical agent, requires to be regulated by dosing according to circumstances, as in the course of the six months' winter and spring seasons, not only does the climate of every place undergo important changes, but the constitution of individuals, especially of pulmonary invalids, becomes materially modified by its influence, so that while many remain with advantage during the six months or longer in one place, there are others who cannot do so with impunity, and without experiencing an aggravation of the complaint, which was at first benefited. The same observation necessarily applies as well to a climate of a sedative as to one of an exciting and bracing character. Where the former is indicated by the nature of the case, a few weeks or a three months' sojourn in the place will often produce the desired effect upon the system; whereas, by too greatly prolonging their sojourn, patients in many cases, though not in all, become greatly depressed in general tone and

spirits. Hence patients should not generally be peremptorily advised to go to such or such a place for the winter, for the trial has always to be made as to how the locality chosen will agree.

Another drawback to the places distant from England to which I refer (as Upper Egypt, Algiers, the south-eastern coast of Spain, Madeira, &c.) is, that as the heat there sets in early in the year, and steadily increases, and as there is no intermediate climate accessible within a moderate distance, the contrast, as respects the state of the weather, cannot fail to be painfully experienced by, and subjects to the greatest risks, sensitive invalids, who have been basking for several months in sunshine, on their returning northwards on the approach of summer.

A third inconvenience as respects a winter sojourn in Egypt, especially on ascending the Nile, is the want of any suitable accommodation for invalids requiring attention, the comparative privation of walking exercise, and the confinement to the small boat. Indeed, the whole district is said, by a French physician, for several years resident at Alexandria, who has written a work on the climate of Egypt (Dr. Schnepp) to be prejudicial to consumptive patients, owing not only to the above-mentioned cases, but also to the extreme variations of temperature between the middle portion of the day and the mornings and evenings on the Nile, to the strong wind which, setting in about the middle or end of March, blows up the course of the river, raising clouds of dust on its banks.

The place most frequented on the Spanish coast is Malaga (of which I have given an account in my work on the climates of Spain), the neighbourhood of which presents but little attractions for walking exercise, and where the accommodation is but indifferent, there being no lodgings or furnished houses to be hired, so that the winter visitors, consisting of invalids (several in a more

or less advanced state of disease) and their friends, are for the most part congregated in three or four hotels; consequently, every serious aggravation of symptoms in any of the party, and every death that occurs must be known to the rest, and it need scarcely be said cannot fail to have a very depressing effect upon them.

I have hitherto been considering the cases to which a climate, characterised by moderate dryness of the atmosphere, and of a bracing and exciting kind is most applicable; but on the other hand, there are many to which such a climate would be positively injurious; where, from excitability of the system, inflammatory action in the lungs or air-passages, a tendency to active hemoptysis, or from extensive lesion, the disease being in an advanced stage, the attempt to improve the general state of the constitution must either be abandoned, or must be postponed to a more favourable period, should such arrive; and where consequently a warm sedative and moister atmosphere, but little agitated by winds, would present the greatest probability of advantage from the influence of climate. The most frequented as well as the most easily accessible place, possessing a climate of this kind is Pau. The climate of Biarritz on the Atlantic coast is of a more bracing character, but would not be suitable for many patients in spring, owing to the gales from the ocean at this period. From these, Arcachon, which has come more into notice of late years, is more sheltered, being situate on an inclosed basin of the Atlantic, and consisting, for the most part, of detached houses among pine woods. Visitors frequently migrate from one to the other of these places, and there is also an accession in the spring of several of those who had been previously staying in the winter stations on the south-eastern coast of France, or visiting the chief cities of Italy.

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